Lebanon's Earliest Potting Traditions in Regional Context

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Abstract

Ceramic vessels have been an essential component of daily life in the Levant for 9,000 years, yet the processes shaping the introduction, development, and dissemination of pottery technology in the region remain poorly understood. This paper presents new ceramic data from the Neolithic of the Biqāᶜ Valley and Lebanese coast and reexamines published information to investigate the earliest potting traditions in Lebanon. The aim of this work is to organize and synthesize the data available on Neolithic pottery from Lebanon and to place the assemblage in its broader regional context, thereby gaining a better understanding of the trajectory of the adoption and dissemination of pottery technology in the Levant.

Keywords Pottery Neolithic, Lebanon, Dark Faced Burnished Ware, Adoption of Ceramic Technology

Introduction

Ceramic vessels have been an essential component of daily life in the Levant for 9,000 years, yet the processes shaping the introduction, development, and dissemination of pottery technology in the region remain poorly understood. New insights have been gained through recent work by Badreshany (2013), Nieuwenhuyse *et al. (*2012 and 2010), and Balossi-Restelli (2006), which synthesizes the available data relating to the earliest potting traditions in the Northern Levant. The evidence from these studies indicates an unexpected trajectory, showing that the dissemination and adoption of ceramic technology was sudden, rather than gradual, beginning sometime around 7000 BC, and that early pottery likely played socio-symbolic, rather than purely functional roles. It is only sometime later, at a date that remains uncertain but perhaps around 6500 BC, that the role of pottery was extended to embrace

more strictly functional roles, such as storage or food preparation, and then gradually adopted throughout the Levant.

This paper will present new ceramic data from the Neolithic of the Biqāᶜ Valley and Lebanese coast and reexamine published information to investigate the earliest potting traditions in Lebanon. The aim of this work is to organize and synthesize the data available on the Neolithic pottery from Lebanon and to place the material in its broader regional context, thereby gaining a better understanding of the trajectory of the adoption and dissemination of pottery technology in the Levant. The vast majority of the ceramic assemblage examined for this work comes from the collections made during surveys of prehistoric sites conducted all over Lebanon from the start of the 20th century through to the 1960s (Copeland and Wescombe, 1965 and1966; Hours *et al* 1994) and housed at the Archaeological Museum of the Université Saint-Joseph. These were supplemented with a smaller comparative group of samples originating from stratified Neolithic deposits at the recently excavated site of Tell Koubba, located north of Batroun on the Lebanese coast.

The Pottery Neolithic of Lebanon, Nomenclature and Chronology

The available information suggests a relatively low population density during the various stages of the Neolithic in Lebanon, as very few sites are known. Lebanon, however, has seen far less archaeological work relative to neighboring regions and it is reasonable to assume that more sites exist, but have not yet been discovered due to a lack of systematic archaeological surveys in most of the country.

Most Neolithic sites in Lebanon are known from surface collections only and their precise chronology remains uncertain. A recent summary of the Pottery Neolithic in Lebanon has been provided by Haïdar-Boustani (2014). According to this, and other works by Copland and

Wescombe (1965 and 1966) and Marfoe (1995 and 1998), the majority of the sites produced datable lithic assemblages, but no pottery. The Neolithic sites in Lebanon that have produced pottery and can be dated with a degree of certainty will be treated in more detail here.

The Pottery Neolithic of Lebanon remains a poorly studied and no terminological subdivisions or clear internal chronology has been agreed upon or is used widely. Here, drawing upon the currently available data, a basic framework will be suggested. The basis for our chronology is the one employed by Marfoe in his survey of the Biqāᶜ Valley (1995 and 1998). Although his framework was developed 30 years ago, recent studies dealing with the Pottery Neolithic by Badreshany (2013) and (Mathias 2015) have shown it to be robust even with the addition of new data in the intervening years. Marfoe, when developing his chronology, considered the artifactual and settlement data along with the combination of technological and stylistic changes in the material culture of the Biqāᶜ Valley thus increasing the robustness of his framework. Marfoe's work also integrated the scant radiocarbon and stratigraphic data then available for the Lebanon during the Neolithic.

A slightly adjusted version of Marfoe's original bipartite nomenclature for the Neolithic will be adopted here. A review of the available data for the period from Lebanon below serves to justify these divisions. The main partitions employed in this work are the Early Pottery Neolithic (EPN), which is further subdivided into two phases, the EPN 1 and EPN 2, and the Late Pottery Neolithic (LPN). Marfoe originally called the latter period the Late Pottery Neolithic/Chalcolithic (LPN/CH), because of a lack of data at the end of the period resulting in a poor understanding of the Neolithic/Chalcolithic transition. He further subdivided the LPN/CH into two subphases (1 and 2). Phase 2 was called the Djisr stage, and only applied to a small group of material in the southern Biqāᶜ, the date of which remains uncertain. Here we will only treat the LPN, corresponding to Marfoe's subphase 1, in order to avoid the

unintended inclusion of material which future research might indicate should fall within the Chalcolithic. This paper, therefore, will only focus on material that can be reasonably linked to well-established Neolithic traditions, as known from other parts of the Levant, equivalent to Marfoe's LPN 1.

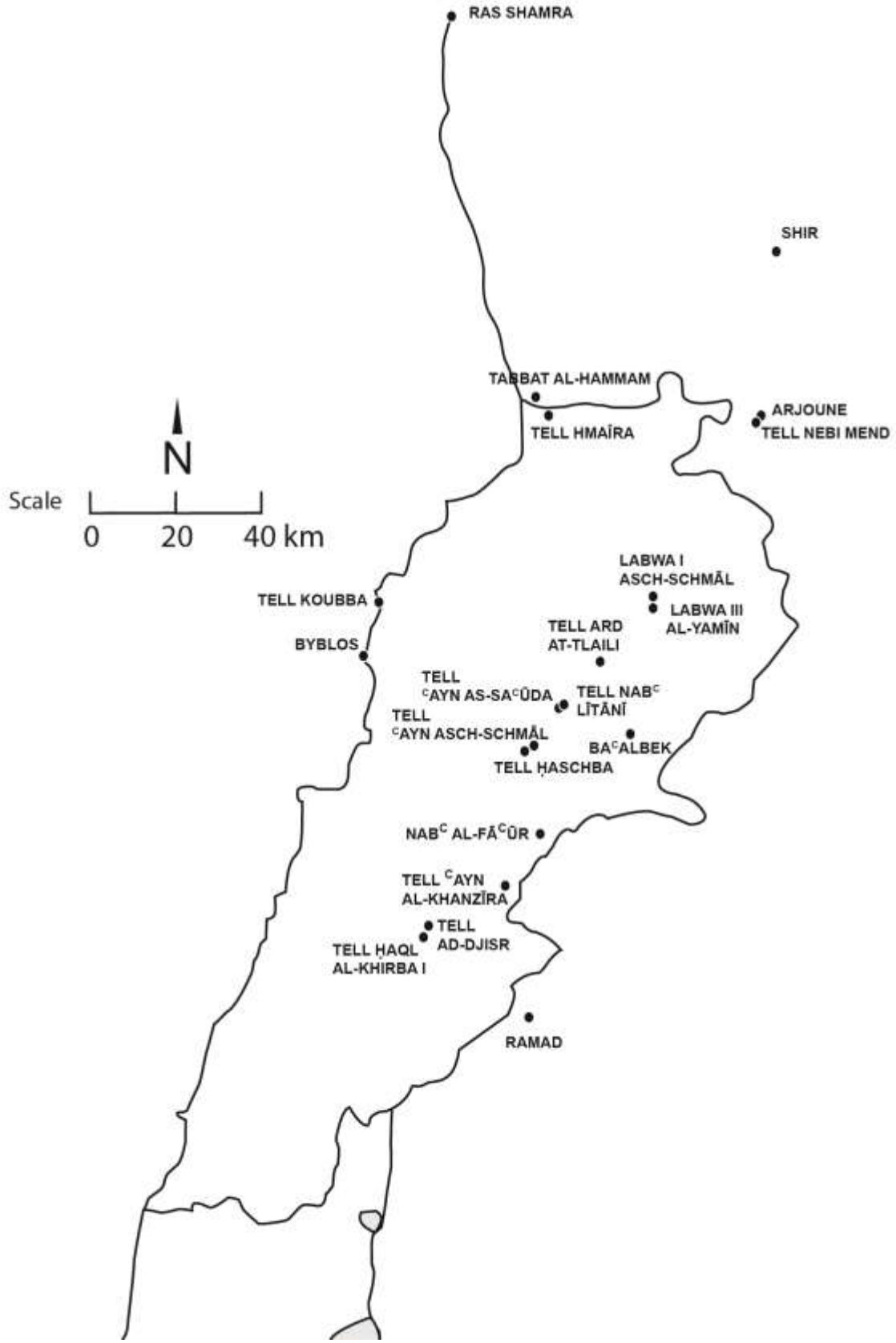

Figure 1 Map showing sites mentioned in the text.

Only two sites producing pottery and containing remains securely dated to the Neolithic are known from the coast, Byblos (Dunand 1973) and Tell Koubba (Currently under excavation by a Joint AUB/Durham Univeristy team lead by Helen Sader (AUB), Kamal Badreshany and Graham Philip (Durham)). In the ᶜAkkar, although other Neolithic sites are known, Neolithic pottery is only found at Tell Hmaîra, on the Nahr el-Kebir near the border with Syria (Bartl and Chaaya 2002). The majority of the known Pottery Neolithic sites in Lebanon, can be found in the Biqāᶜ Valley. Only one EPN site – Labwa – has been excavated in Lebanon; this lies in the northern part of the Valley (Kirkbride 1969 and Haïdar-Boustani and Ibáñez 2014). A limited sounding was conducted at the Late Pottery Neolithic site of Arḍ at-Tlaili, which produced a good ceramic assemblage (Kirkbride 1969). Neolithic ceramics were found in the deep sounding at Baᶜalbek (Van Ess *et al.* 2008) that while difficult to date precisely, are comparable to late EPN or LPN types. Survey work in the Biqāᶜ by Copland and Wescombe (1966 and 1965) and Marfoe (1998) along with a recent study of the collected assemblages by Badreshany (2013) have established that possibly as many as 18 sites were occupied in the Early Pottery Neolithic with as many as 55 occupied during the Late Pottery Neolithic. It is hard to assess the change in number of sites occupied on the coast in these periods because of to the paucity of archaeological data. Given the available information, it is difficult to determine precisely the number of sites occupied throughout Lebanon during the period, but the above research clearly shows that settlement in the Biqāᶜ appears to increase steadily throughout the Neolithic.

Recent work, presented below, shows that in the earliest periods of the Pottery Neolithic ceramics were relatively rare at sites in the Levant. However, the periodization of the Neolithic as a whole has been defined by their presence or absence. The current nomenclature should, in due course, be revisited as it has been shaped by the heavy emphasis upon ceramic data that characterizes the study of later periods, and takes little account of the modest

quantities (and quite possibly limited importance) of ceramics relative to other categories of material culture during the Neolithic itself, and the EPN in particular.

The Early Pottery Neolithic 1, as the names suggests, is defined by the very first arrival of ceramics in the area. The chronology remains uncertain, but the radiocarbon and ceramic evidence presented below suggest that the earliest pottery arrived sometime between 7000-6800 BC. During this phase, pottery is known from relatively few sites and is found in small numbers. The majority of the ceramics from this period belongs to the so-called 'Dark-Faced Burnished Ware' (hence forth DFBW) tradition. The EPN 2 begins sometime after 6500 BC with the proliferation of pottery in general, but in particular, coarser and non-decorated (plain) pottery styles. The evidence shows that the transition from the Early and Late Neolithic is defined by an increase in the number of sites, at least in areas that have been intensively surveyed (Marfoe 1998), along with an increase in the overall quantity of pottery and the number of sites where it is found. Again, the exact chronology is uncertain, but evidence presented below indicates that the Late Neolithic likely begins sometime around 5800 (calibrated) BC.

The relative and absolute chronology used in the work is as follows:

Period Name	**Sub-Period and Stage**	**Approximate Date BC (Based on Calibrated ^{14}C Dates)**
Early Pottery Neolithic (EPN)	EPN 1	7000/6800-6500
	EPN 2	6500-6000/5800
Late Pottery Neolithic	LPN	6000/5800-5300

Figure 2. Relative chronology with approximate absolute dates. Published ^{14}C dates calibrated using OxCal version 4.2 and the INTCAL13 standard (Reimer *et al.* 2013). The ^{14}C date ranges given throughout the text are calibrated to 2σ or 95.4% probability.

An Absolute Chronology for the Introduction and Proliferation of Pottery in Lebanon

The earliest pottery associated with radiocarbon dates from Lebanon was uncovered during a sounding made at the site of Labwa III al-Yamīn (also known as Labwé Sud) marking the start of the EPN 1. Soundings by Kirkbride (1969) and more recent work investigating an archaeological section by Haïdar-Boustani and Ibáñez (2014), found many fragments of DFBW, associated with structures and some large pits. The pottery was found along with the so-called 'white ware' vessels, that are also associated with the Pre-Pottery Neolithic occupation (Kirkbride 1969: 47, see Dornemann 1986 and Garfinkel 1999: 12-15 for a general survey of this vessel type). Three ^{14}C dates were collected during the excavations that yielded uncalibrated dates of 6040 BC ± 140, 5910 BC ± 140, and 5900 BC ± 140 (Kirkbride 1969:50 and Garfinkel 1999: 308), giving a calibrated age range of approximately 7000-6500 BC. Calibrated dates generated by Haïdar-Boustani and Ibáñez (2014: 27) are broadly similar, indicating the occupation of the site took place between approximately 7100-6500 BC. According to Haïdar-Boustani and Ibáñez, pottery only first appeared in the latest level (Level I) and the second latest level (Level II). Layer I could be dated to roughly 6500 BC, layer II has not produced any dates. The arrival of earliest pottery in the Lebanon, therefore, must occur sometime after roughly 7000 BC, but certainly before 6500 BC, fitting well with dates provided from other sites around the region discussed below. Unfortunately, a more precise date for the introduction of pottery technology to Lebanon cannot be provided until more ^{14}C dates from secure EPN contexts are generated.

The sequence from Labwa III al-Yamīn closely parallels that of the more thoroughly excavated Syrian sites of Tell Nebi Mend (Mathias 2015), Tabbat el-Hammam (Hole 1959), Shir (Bartl *et al.* 2012 and 2009, Bartl and Haidar 2008, and Nieuwenhuyse 2009 and 2012), located about 12 km to the northwest of Hama, and Tell Ramad (de Contenson 2000), located about 15

kilometers southwest of Damascus just to the east of the Anti-Lebanon range. Coastal material from Byblos (Dunand 1973) and material investigated as part of this study from Tell Koubba are broadly similar to the EPN 1 materials from the Biqāᶜ, but as will be discussed below, present some differences in color and texture, which seem to indicate that they are slightly later in date.

Not surprisingly in view of its location, Tell Nebi Mend provides the closest ceramic parallels with Neolithic materials from the Biqāᶜ. In fact, a recent geochemical analysis of early DFBW from Lebanon and the Homs region (Badreshany and Philip *in preparation*) shows that materials from Labwa and Nebi Mend share a common geographical origin and may also suggest that they are contemporary. At Nebi Mend, the Neolithic levels were divided into 5 phases, the first 4 of which (i.e.Phases 1-4) produced radiocarbon dates. These fall between roughly 7000-6500 BC (Mathias and Parr 2015: 47), for the whole of the EPN occupation. As the pottery is already present in phase 1, it is reasonable to suggest that the absolute date associated with its arrival falls early in this range.

Shir provides many close ceramic parallels with the earliest Lebanese material from the Biqāᶜ, although not to the same degree as Nebi Mend. The material from Shir is associated with very good sequence of radiocarbon dates indicating that the occupation of the site took place from roughly 7000 - 6000 BC (Bartl *et al.* 2012: 170). Pottery at Shir is associated with levels dating from 7000 BC until the site's abandonment. Nieuwenhuyse 2009, shows the existence of an initial phase of activity dated roughly 7000-6800 BC (2009: 314) from which comparatively little pottery was recovered with this being mostly of the DFBW type. Although coarse ware was present in small amounts in these periods, DFBW is the most commonly found ceramic at the site until roughly 6500-6400 BC. After this date DFBW vessels make up a very small portion of the pottery assemblage (approximately 2%) and coarse unburnished wares

predominate (Nieuwenhuyse 2009: 314). Those DFBW types found in the Biqāᶜ that have parallels at Shir, thus, very likely predate 6500 BC.

At Tell Ramad, a phase of white plaster vessels (Ramad II) is followed by a phase containing similar types of ceramics (Ramad III) to those found at Labwa III al-Yamīn. ^{14}C dates from Ramad II are very similar to those from Labwa III al-Yamīn, giving a calibrated range of 7000-6500 BC (de Contesson 2000: 21).

The ceramic and radiocarbon evidence from Lebanon associated with the earliest ceramics integrates well with that known from surrounding regions and indicates that the earliest pottery arrives in the Biqāᶜ and the probably the ᶜAkkar sometime between 7000-6800 BC, signaling the start of the EPN 1. In this initial phase, which the evidence indicates lasts until roughly 6500 BC, pottery is not found in great quantities and DFBW is predominant

The ceramic evidence from Byblos, shows an abundance of forms that find better parallels among slightly later assemblages compared to those from the ᶜAkkar and the Biqāᶜ discussed above. The one radiocarbon date published from Byblos (Dunand 1973: 34) provided a calibrated date between 6500-6000 BC (Mathias and Parr 2015: 37), further indicating that pottery might not appear on the Lebanese coast until the EPN 2 (6500 BC), when pottery is much more common in the region. Mathias (2015) has, however, rightly pointed out that a few typical EPN 1 cord-impressed DFBW sherds appear among the published material (2015: 97; Dunand 1973, pl. XLIX), suggesting that future research may conclusively prove the earlier appearance of pottery on the Lebanese Coast.

The radiocarbon date from Byblos is the only absolute date associated with the EPN 2, from Lebanon. Geochemical data of EPN 2 DFBW ceramics from Byblos and Nabᶜ al-Fāᶜūr

(Badreshany and Philip *in preparation)* show a common geographical origin, suggesting they are contemporary and linking the absolute date for the EPN 2 from Byblos to the Biqāᶜ. The date fits with the radiocarbon evidence from Shir that indicates a proliferation of ceramics beginning around 6500 BC, coincident, however, with a decline in DFBW in favor of a greater production of coarse wares. The evidence from Lebanese coast and Biqāᶜ, seems to indicate that the DFBW tradition continues in both places, but the cord-impressed DFBW tradition seems to disappear from the Levant entirely between 6500-6000 BC (Nieuwenhuyse 2012). It is difficult assess the absolute dates associated with the end of the EPN 2 confidently due to the lack of radiocarbon dates associated with stratified material in Lebanon. Until more evidence is available, we will cautiously place the end of the EPN 2 in the Biqāᶜ and on the Coast at 6000-5800 BC, utilizing the more abundant radiocarbon evidence marking the beginning of the LPN to delineate the transition.

The dates for the beginning of the LPN are based on material excavated by Kirkbride (1969) at the site of Arḍ at Tlaili in the Biqāᶜ. Three small soundings were conducted that were associated with four sequential and stratified ^{14}C dates (Kirkbride 1969: 55 and Garfinkel 1999: 309). The ^{14}C samples yielded uncalibrated dates of 4920 ± 130, 4900 ± 130, 4840 ± 130, and 4710 ± 130, giving a calibrated age range of roughly 5800-5300 BC for the beginning of the LPN. These dates are consistent with those published by Parr (2003: 29) for the beginning of the Late Neolithic occupation at Arjoune, located just north of the Biqāᶜ and close to Tell Nebi Mend in Syria. Arjoune yielded Late Neolithic material closely comparable to that found in the Biqāᶜ (see tables accompanying LPN plates below for list of specific parallels). These dates agree with more recently published ^{14}C dates from the southern Levant at Tabaqat al-Bûma (Banning *et al.* 2011: 37-38) and Tell el-Mafjar (Anfinset et al. 2011: 109-110) that are associated with LPN materials comparable with those from the Biqāᶜ. The ^{14}C dates from these sites yielded dates ranging between roughly 5900-4500 BC. The dates

associated with the end of the period also agree with ^{14}C dates from sequences in Palestine associated with the beginning of the Late Chalcolithic. Van den Brink at Modi'in in central Palestine (2011: 67) has a well established sequence associated with ^{14}C dates that places the beginning of the Late Chalcolithic sometime around 4500 BC, in agreement with Garfinkel. Burton and Levy (2011: 179) propose a similar chronological framework based on ^{14}C dates from Shiqmim.

In the case of the Lebanon, the internal divisions within the LPN are the most problematic due to a lack of excavated materials. As mentioned above the LPN was divided into two phases by Marfoe, the Tell Arḍ at-Tlaili phase (LPN/CH 1) and the Tell ad-Djisr stage (LPN/CH 2), both named after the sites where the pottery of the two phases were most commonly found. The division is also geographical with the Djisr style pottery occurring in the central and southern Biqāᶜ and Arḍ at-Tlaili pottery occurring in the central and northern areas. A reasonably precise chronology associated with the division and transition between these phases is impossible to define given the current lack of stratified contexts. There is good evidence for an early LPN phase lasting from roughly 5800-5300 BC. Beyond those dates, the general lack of evidence leads to a muddled definition in the literature of what is Late Neolithic and early Chalcolithic. Here, defining the transition between these two periods will be avoided as this problem is best treated when there is more data available from Lebanon and surrounding areas.

Major Pottery Neolithic Sites and New Ceramic Materials From Lebanon

For this paper, previously unpublished materials dating to the EPN and LPN will be presented and the resulting changes to the settlement landscape of the period will be considered. The materials are predominantly from the Biqāᶜ, with some originating on the Lebanese coast. The new ceramic data included in the paper, belonged mostly to the collections housed

Archaeological Museum of the Université Saint-Joseph. A stratified assemblage of pottery likely dating from the EPN 2 from Tell Koubba was found during the first season of excavations in 2015. Melissa Kennedy studied the assemblage in the field and her preliminary conclusions on the Neolithic will be summarized briefly here. Radiocarbon samples associated with this assemblage are still being processed and any dates given are tentative.

The dataset of the EPN 1 and 2 from the Biqāᶜ Valley numbers 255 diagnostic sherds. The excavations of Tell Koubba, produced at least an additional 860 sherds that appear to us to belong to the EPN 2. Of the sites reported for the EPN, the majority of the artifact assemblages found were aceramic. Aside from Koubba, the sites that yield ceramics during this period are located almost exclusively in the central and northern part of the Biqāᶜ. Of these, only eight sites produced diagnostic types comparable with regional sequences. Labwa III al-Yamīn and Nabᶜ al-Fāᶜūr are the type-sites. Tell ᶜAyn asch-Schmāl, Labwa I asch-Schmāl, Tell Ḥaql al-Khirba I, Tell Ḥaschba, Baᶜalbek, and Tell ᶜAyn al-Khanzīra also produced some examples dating to the EPN.

Some 859 sherds suspected of belonging to the LPN were found in the USJ collection. Of those, nearly 400 could be confidently placed in this period. On the Lebanese coast, a well-known assemblage is published from Byblos (Dunand 1973). Further study of the materials from the initial excavation season is required to confirm whether Tell Koubba produced LPN pottery, alongside the EPN material. In the Biqāᶜ, a greater number of sites yielded pottery from this period and ceramics are noted throughout the Valley, albeit on a more limited basis in the south. The ceramic type-sites are Tell Arḍ at-Tlaili, Tell ad-Djisr, Tell ᶜAyn asch-Schmāl, and Tell ᶜAyn as-Saᶜūda. Tell Nabᶜ al-Fāᶜūr, Tell Ḥaschba, Tell Aswad, Tell Nabᶜ Līṭānī, Tell ᶜAyn al-Khanzīra, and Saqiet al-Khalli also produced diagnostic types that could be confidently attributed to this period.

The Ceramics of the EPN 1 and 2

At present, a lack of material from stratified Neolithic deposits in Lebanon makes possible only a generalized understanding of typological development for the period. The available evidence, however, allows for the establishment of a preliminary outline of the changes that took place in the pot making traditions through the EPN.

The earliest ceramics from Labwa III al-Yamīn are typologically most closely comparable to those from those from Phases 1-5 at Nebi Mend (Mathais 2015), Tabbat al-Hammam (Hole 1959), Shir (Nieuwenhuyse 2012 and 2009), Amuq A and B (Braidwood and Braidwood 1960), Ramad III (de Contenson 2000), and Ras Shamra VA (Schaeffer 1963), showing a clear association with pot making traditions to the north. This will remain the case for the EPN 2 in the Biqāᶜ Valley and on the Lebanese coast. The EPN 2 material found in Lebanon is very different from the characteristic Yarmukian pottery typical of Northern Palestine in the Early Pottery Neolithic. Only a few examples of ceramics directly comparable with traditions from Palestine were found within the assemblage for the EPN 2 (see tables below).

The vessels of the EPN 1 are usually simple and globular, sometimes exhibiting ledge handles. The typology is restricted to simple rims, bowls, and jars. The shapes of some vessels are more varied with examples occurring with thinner walls and more complex rims (e.g. figure 8: 7).

The most prevalent ware type found during the EPN 1 in the Biqāᶜ is the DFBW. DFBW datable to the EPN 1 was found among the survey materials at Labwa I asch-Schmāl, Labwa III al-Yamīn, and possibly, Nabᶜ al-Fāᶜūr. The colors are usually dark and include brown, dark brown, brownish-grey, and less commonly black. Lighter brown colors occur with less

regularity. The colors of DFBW during this period are more restricted when compared examples from later periods.

The most typical treatments for the DFBW are various degrees of burnishing, which range from subtle to a highly reflective finishes (figures 3, 4, and 5)**.** As was the case at Nebi Mend and Tabbat al-Hammam, cord-impressed decoration is very common in the EPN in the northern Biqāᶜ. There are some decorative preferences that manifest geographically between the northern and southern areas of the distribution of DFBW. The Northern Biqāᶜ, including Nebi Mend and the ᶜAkkar form a stylistic region where Cord-impressions and faint incising are found on a large majority of the early pottery vessels. The analysis of stratified materials from Tell Nebi Mend show that cord-impressed and faint incised DFBW can form 60-65% of the vessels in the first 3 of the earliest ceramic phases (Mathias 2015). Mathias also noted that cord-impressions and reflective finishes are often combined on the same vessel (2015: 89). Among the EPN 1 materials collected in the Biqāᶜ, cord-impressed vessels seem to be similarly common.

By contrast, at the sites of Shir, near Hama, and Ras Shamra, on the coast, vessels with these decorative elements appeared only in small numbers (Balossi-Restelli 2006: 219; Nieuwenhuyse *et al.* 2012).

A petrographic analysis of the EPN 1 DFBW vessels conducted by Badreshany (2013) shows that these early vessels derived from clay formed on Neogene basalts consistent with those found in Northern Lebanon and the Homs area. These outcrops are not found in the vicinity of Labwa or the central Biqāᶜ, thus the earliest ceramics in Lebanon were probably not made locally. The origin of these vessels remains unclear, as the outcrops from which the vessels likely originate are extensive. Recent geochemical studies by ICP –AES and –MS (Badreshany

and Philip *in preparation*), show they share a common origin with vessels from Tell Nebi Mend, which is located much closer to these Neogene Basalts. Preliminary petrographic results also indicate that the reflective DFBW and the cord-impressed varieties are made of the same fabric. The two styles, thus, potentially represent categorically and temporally synchronous decorative traditions.

The only other type of ceramic ware noted for this early period was a Plain or Coarse Ware which is difficult to associate stylistically with regional traditions (figure 3 (B)). It is most commonly pink or orange in color. The plain ware was only noted very rarely amongst the survey materials at Labwa. Since the published radiocarbon dates from the site show no occupation later than 6500 BC, it might be suggested that a small quantity of some plain and coarse ware vessels can be dated to the EPN 1. Plain ware made up 7% of the assemblage in the earliest phases at Nebi Mend, increasing to 25% by phase 5 (appx 6500 BC) (Mathias 2015: 88). Thus, plain coarse wares are likely to begin to appear in Lebanon already in the later part of the EPN 1. It is hoped that the publication of the ceramic data from the new Labwa excavations will further clarify the timeline associated with the arrival of plain wares into Lebanon.

During the EPN 1, a class of non-ceramic vessels, known as the white plaster wares, are the only known large and heavy receptacles (Kirkbride 1969: 48). Due to their size, weight, and brittleness, scholars commonly interpret white ware vessels as being stationary and associated with food storage or preparation (Nilhamn *et al.* 2009: 67 and Garfinkel 1999: 12). In subsequent periods, coarse wares seem to fill a similar role, and probably replace the white plaster ware.

The EPN 2 is best represented at Byblos (Dunand 1973), Tell Koubba, and Nabᶜ al-Fāᶜūr (Marfoe 1998). DFBW from the deep sounding in Baᶜalbek is difficult to date but given their color and shape, are most comparable to EPN 2 or LPN types in the USJ assemblage. Geochemical data (Badreshany and Philip *in preparation*), shows a shared signature for DFBW ceramics from Byblos, Tell Koubba, and Nabᶜ al-Fāᶜūr indicating that they originate from a common source and suggesting that these three sites are broadly contemporary.

The typology of the EPN 2 is more diverse than that of the EPN 1. Along with the simple rim forms, bowls, and jars found in the latter period, holemouth jars, ring bases, and more complex handle forms are added to the repertory in EPN 2, likely indicating the adoption of some ceramic vessels for functional roles related to food preparation and storage. One DFBW ring base was found among the EPN2 materials from Nabᶜ al-Faᶜūr (figure 11: 11) and has a parallel at Tell Koubba on the coast.

White plaster wares and cord-impressed wares are no longer found by the EPN 2 (Marfoe 1995: 49). Both types are also absent from the likely EPN 2 site of Tell Koubba on the coast. In contrast to the evidence from Shir, where coarse wares become the most common ceramic in this period, the evidence from the Biqāᶜ and on the Lebanese coast at Tell Koubba clearly indicates that DFBW remained the most common ware type in Lebanon. The DFBWs are on the whole more evenly and highly burnished relative to earlier periods and the color shifts a bit, with vessels more commonly appearing in chocolate-brown, reddish-brown, and black with a thick slip (see below for munsell Colors).

A phenomenon that was noted only at Byblos and Koubba and seems restricted to the Lebanese coast in the EPN 2 is the appearance of DFBW vessels that are plastered on their interior (figure 6). DFBW vessels with a white plaster lining, representing some sort of

technological hybrid between lime and clay, were found at Byblos (Dunand 1961: Plate IV) and at Koubba with some frequency. These vessels date to the EPN 2, and disappear at the end of the phase, suggesting the presence of a temporally and spatially restricted coastal tradition. A limited number of examples are known from other parts of the Near East, such as a coarse ware example from Shir dating from 7000-6800 BC (Nieuwenhuyse 2009: 323), however the tradition seems most common on the Lebanese coast. Whether the purpose of this technique is functional, decorative, or a combination of the two remains unclear, but the tradition is relatively short lived. Plaster has antiseptic properties and plaster vessels may be useful for food storage or preparation (Nilhamn *et al.* 2009: 67). Plastering on ceramic vessels, however, is mostly associated with DFBW rather than coarser functional wares, suggesting that the treatment may have been decorative and that the vessels additionally filled socio-symbolic, rather than purely functional roles. Lending evidence to the idea that the phenomenon may have served, at least in part, a decorative function, is one EPN 2 DFBW bowl found at Koubba which presented a highly burnished and even plaster interior.

Coarser or plain wares do become more common in the EPN 2 in Lebanon, especially in the Biqāᶜ. The Coarse wares are variable in both preparation and treatment and cannot be placed securely into a category. The ware is rarely decorated although sometimes applied decoration is noted.

Plain ware is found at many EPN 2 sites and is very difficult to date because it is not distinctive. The plain ware presented in this study is more often dated based on morphological comparisons with regional sequences than with the other ware groups. The source (reference or ware comparison) is given in the tables associated with the figures containing the ceramic drawings. Certain plain wares carry distinct applied decorations

making them more comparable to ceramics found at other sites. Some coarse wares do have more complex shapes and do exhibit a more skillful and even finishing.

Figure 7 (A) shows an example of EPN coarse ware. The clay is noticeably coarser when compared to contemporary DFBWs, with the fabric consisting of a greater number of larger inclusions. The vessels made of coarse ware occur in simple open shapes as well as closed forms, like holemouth and necked jars. A number of rims found at Nabᶜ al-Fāᶜūr during this period contain small indentations under the rim (figure 11: 5 and 13: 1 and 5) suited to inhibiting the spilling of contents. Coarse ware jars usually have ledge handles during this period, but some examples, such as figure 13: 1, have pierced or loop handles. Marfoe (1995: 49) and Copeland (1969: 89) considered 'pierced handles' to appear later in the EPN. Most of the jars are moderately fired. They occur in a variety of colors pink, red, grey, and brown. Differential firing is noted on the interior and exterior of plain ware vessels.

Some examples of plain ware were coated with a thin red slip (Figure 7 (A)). Additional elements include incisions and cord decorations (Figure 3 (C)). A ledge handled vessel (figure 7 (B)) had a white surface bloom that is characteristic of the use of salt or salt water in the preparation of the clay (Rice 2005: 119). This treatment helps prevent spalling in calcareous clays. The use of salt or salt water could indicate a coastal provenience for this vessel. This vessel also exhibited surface soot deposits typical of pots repeatedly exposed to fire during use, such as cooking pots.

There appears to be a linked tradition of pot making in the Biqāᶜ during the EPN 2. No discernible synchronic difference can be seen within the material collected from the various sites. This is not surprising as the settlements where inhabitants used pottery are, for the most part, located relatively close to each other in the northern part of the valley. There seems

to also be links between the Biqāᶜ and the coast, during the EPN 2 as indicated by the increase in comparable wares and types between Byblos, Kubbah and the Biqāᶜ Valley.

A petrographic analysis (Badreshany 2013) indicates that a greater variety of clay sources were used beginning in the EPN 2. Most DFBW is still made using clay derived from Neogene Basalts, however, for the first time other types of fabrics, consistent with locally available clay sources, begin to appear. Some, of the DFBW vessels from Tell Koubba, are made from non-local basalt clays and others are made from materials consistent with locally available clays; these are also used for coarse and plain wares. Favored resources chosen at this early stage in the Biqāᶜ and on the coast are those that will continue to be utilized for millennia to come. These include clays derived from Upper Cretaceous-Paleogene Chalks and Alluvial-Colluvial Sediments derived from Lower and Middle Cretaceous Limestones. Tempers used include calcite, organic material, chalk, and limestone.

Regionally, the Biqāᶜ seems to continue to follow a similar trajectory, in terms of ceramic development, to Nebi Mend in the EPN 2. For example, the relative occurrence of coarse wares increases with time at Nebi Mend until 6500 BC, and by phase 5 they represent roughly 25% of the ceramic assemblage. However, the Biqāᶜ assemblage found in Lebanon, until this point mostly comparable to areas further north, begins to diverge from that found at Shir, where 80% of the known pottery is coarse unburnished ware by roughly 6500 BC and DFBW has almost disappeared. (Nieuwenhuyse 2012: 314). In contrast DFBW, is still a fairly significant part of the ceramic assemblage at this time in the Biqāᶜ and on the coast. Later, as noted by Carter and Philip (2010: 12), DFBW disappears in most of the Levant where its role in serving vessels is superseded by Halaf, and subsequently Ubaid-type painted wares, but it will continue in Lebanon and the Upper Orontes valley of Syria during the LPN, where their

continued popularity appears to have restricted the uptake of painted wares, which remained very low.

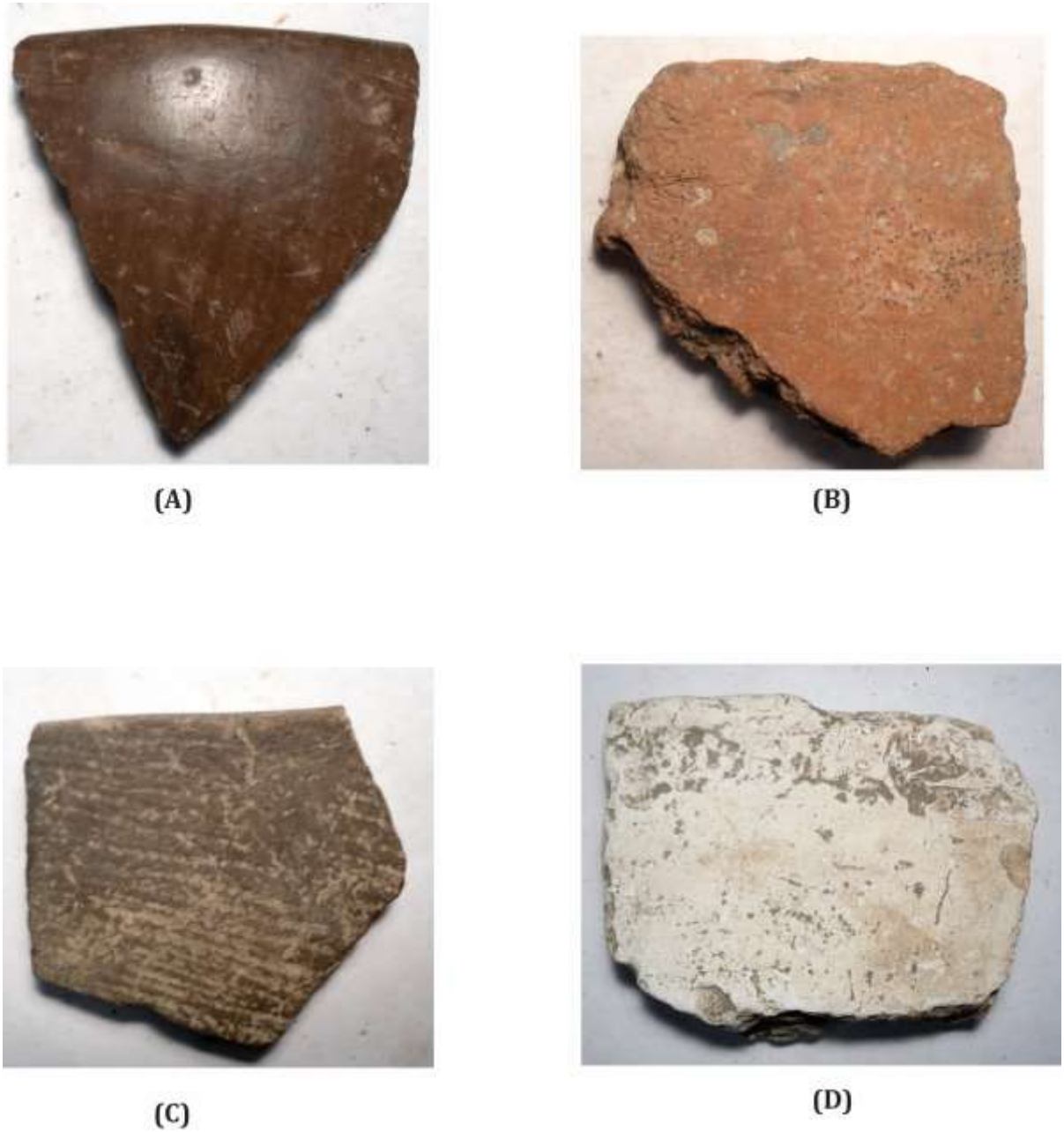

Figure 3 (A) EPN 2 DFBW from Nabᶜ al-Fāᶜūr. (B) EPN plain ware from Tell Ḥaschba. (C) EPN 1 Cord Impressed Sherd from Labwa III al-Yamīn. (D) White plaster ware from Nabᶜ al-Fāᶜūr.

(A)

(B)

(C)

Figure 4 (A) EPN DFBW bowl from Nab^{c} al-Fā^{c}ūr exterior. (B) EPN 1 DFBW bowl from Labwa III al-Yamīn exterior. (C) EPN DFBW from Nab^{c} al-Fā^{c}ūr bowl Interior.

Figure 5 (A) EPN 2 DFBW bowl from Nabᶜ al-Fāᶜūr. (B) DFBW bowl from Labwa III al-Yamīn

Figure 6 EPN DFBW bowl base with lime plaster interior from Tell Koubba

Figure 7 (A) EPN 2 Red slipped coarse ware bowl from ᶜAyn asch-Schmāl. (B) Bowl with lug handles from Nabᶜ al-Fāᶜūr exhibiting salt related broom and sooting from repeated contact with fire.

Figure and Sample Number	Date and Parallels	Description
Fig. 9: 1 Nabᶜ al-Fāᶜūr 5	EPN 1 or 2 Amuq A (Braidwood and Braidwood 1960)Braidwood and Braidwood 1960: 50 fig. 22.3)	Bowl. DFBW. Exterior and interior slip and burnish. Striations. Clay moderately refined. Color: Ext. 2.5YR 2/2 reddish black, Int. 2.5YR 4/4 reddish brown. Petrofabric: **p**EPN4.
Fig. 9: 2 Nabᶜ al-Fāᶜūr 13	EPN 1 or 2 Nabᶜ al-Fāᶜūr (Marfoe 1995 p.53 fig. 25.10)	Bowl. DFBW. Exterior and interior slip and burnish. Striations. Clay moderately refined. Color: Ext. and int. 2.5YR 2/2 reddish black. Petrofabric: **p**EPN2.

Figure and Sample Number	Date and Parallels	Description
Fig. 9: 3 Nab^{c} al-Fā^{c}ūr 9	EPN 1 or 2 Nab^{c} al-Fā^{c}ūr (Marfoe 1995: 53 fig. 25.9)	Bowl. Plain Ware. Exterior and interior slip and burnish. Clay moderately refined. Color: Ext. and int. 2.5YR 2/2 reddish black. Petrofabric: **p**EPN5.
Fig. 9: 4 Labwa III al-Yamīn 4	EPN 1 Amuq A (Braidwood and Braidwood 1960: 50 fig. 22.3) Labwa III al-Yamīn (Marfoe 1995: 46 fig. 19.1)	Bowl. Proto-DFBW. Exterior and interior light slip? and low burnish. Striations. Clay moderately refined. Color: Ext. 2.5YR 3/2 dusky red, Int. 2.5YR 2/4 dark reddish brown. Petrofabric: **p**EPN1.
Fig. 8: 5 ^{c}Ayn asch-Schmāl 4	EPN 2 (possibly later) Ein Jabara (Kaplan 1969: 22 fig. 6.5 Nab^{c} al-Fā^{c}ūr (Marfoe 1995: 54 fig. 26.4)	Bowl. Plain ware. Exterior and interior light slip. Clay coarse. Slip color: Ext. and Int. 2.5 YR 4/8 red. Petrofabric: **p**EPN3Aw1.
Fig. 9: 6 Ḥaql al-Khirba I 2	EPN 1 or 2 Trench A Shir (Bartl and Haidar 2008: 68 Abb. 19) Nab^{c} al-Fā^{c}ūr (Marfoe 1995: 53 fig. 25.2 and 4)	Bowl. Plain ware. Coarse clay. Color: Ext. 2.5Y 2/2 black, Int. 2.5YR 3/4 dark reddish brown. Petrofabric: **p**EPN6.
Fig. 9: 7 Labwa III al-Yamīn 6	EPN 1 or 2 Amuq A (Braidwood and Braidwood 1960: 50 fig. 22.4)	Bowl. DFBW. Exterior slip and burnish, possible int silp. crazing Clay moderately refined. Color: Ext. 2.5YR 4/4 reddish brown, Int. 2.5YR 3/4 dark reddish brown. Petrofabric: **p**EPN1.

Figure and Sample Number	Date and Parallels	Description
Fig. 9: 8 Labwa III al-Yamīn 8	EPN 1 Labwa III al-Yamīn (Marfoe 1995: 46 fig. 2; Copeland and Wescombe 1966: fig 36)	Bowl. Proto-DFBW. Exterior cord impressions. Coarse Clay. Color: Ext. and Int. 5Y 4/2 olive gray. Petrofabric: **p**EPN1.

Figure 8 EPN pottery sample list, date, parallels, and descriptions for drawings on figure 9.

Notation for petrofabrics on all tables corresponds to those found in Badreshany (2013)

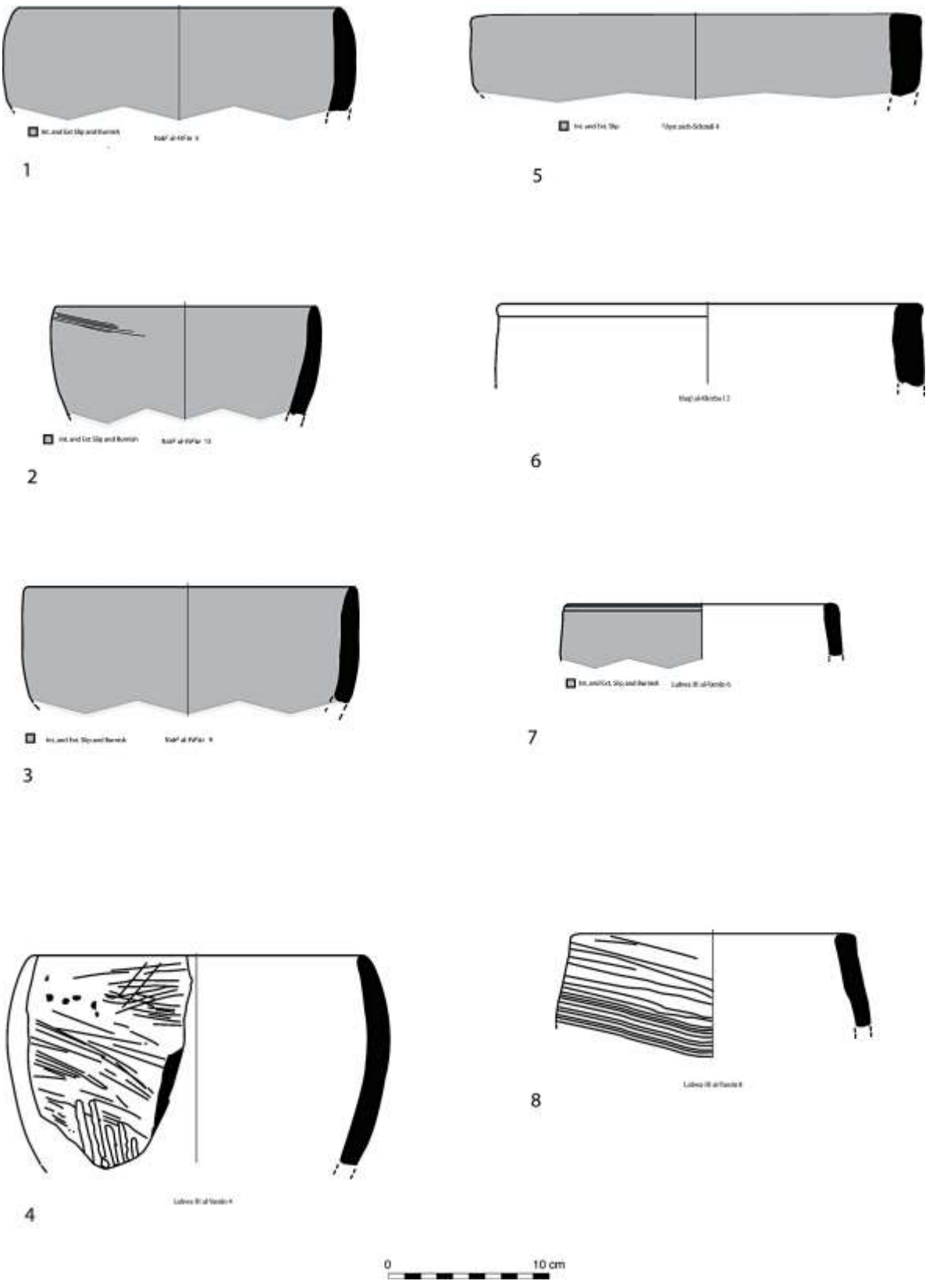

Figure 9 Bowls from the EPN 1 and 2.

Figure and Sample Number	Date and Parallels	Description
Fig. 11: 1 Labwa I asch-Schmāl 4	EPN 1 or 2 No known parallel. Ware parallels (ᶜAyn asch-Schmāl 4)	Jar. Plain ware. Striations. Coarse clay. Color: Ext. and Int. 5Y 4/2 olive gray. **p**EPN3Aw1.
Fig. 11: 2 ᶜAyn al-Khanzīra 12	EPN 1 or 2 Amuq A (Braidwood and Braidwood 1960 p.50 fig. 22.9)	Jar. Plain ware. Light burnish. Coarse clay. Color: Ext. and Int. 2.5YR 3/6 dark red. Petrofabric: **p**EPN3Aw3.
Fig. 11: 3 Ḥaschba 10	EPN 2 Early Neolithic Byblos (Dunand 1973: 49 fig. 17.22683)	Jar. Plain ware. Coarse clay. Differential oxidation. Color: Ext. 2.5YR 6/8 light red and Int. 2.5YR 4/8 red. Petrofabric: **p**EPN5.
Fig. 11: 4 Ḥaschba 14	EPN 1 or 2 Nabᶜ al-Fāᶜūr (Marfoe 1995: 53 fig. 25.13	Jar. Short neck. Plain Ware. Exterior and interior slip and burnish. Slip moderate thickness. Clay moderately refined. Color: Ext. and Int. 2.5YR 3/6 dark red. Petrofabric: **p**EPN5.
Fig. 11: 5 Nabᶜ al-Fāᶜūr 6	EPN 2? Early Neolithic Byblos (Dunand 1973: 50 fig. 18.25484)	Jar. Interior indentation below rim. DFBW. Differential oxidation. Coarse clay. Color: Ext. 2.5YR 4/6 red and Int. 5YR 6/6 light red. Petrofabric: **p**EPN2.
Fig. 11: 6 Nabᶜ al-Fāᶜūr 15	EPN 2 Megiddo XX (Loud 1948: Pl. 1:15)	Jar. Lug handles. DFBW. Differential firing, poorly oxidized. Coarse Clay. Color: Ext. 10YR 5/4 yellowish brown and Int. 5YR 3/2 dark reddish brown. Petrofabric: **p**EPN2.
Fig. 11: 7 ᶜAyn asch-Schmāl 24	EPN 2 Amuq B (Braidwood and Braidwood 1960: 75 fig.47.3)	Holemouth jar. Plain ware. Very Coarse Clay. Color: Ext. and int. 2.5YR 6/4 light reddish brown. Petrofabric: **p**EPN2Aw2.

Figure and Sample Number	Date and Parallels	Description
Fig. 11: 8 Labwa I asch-Schmāl 5	EPN 2 No known Parallels. Ware Parallels ᶜAyn asch-Schmāl 24	Holemouth jar. Plain ware. Light burnish. Coarse Clay. Color: Ext. and int. 2.5YR 6/4 light reddish brown. Petrofabric: **p**EPN3Aw1.
Fig. 11: 9 Labwa I asch-Schmāl 3	EPN 1 or 2 No known Parallel. Ware Parallels Figure 5(B); Labwa III al-Yamīn 6)	Bowl or Holemouth jar. DFBW. Exterior slip and burnish, possible int silp. Crazing. Clay moderately refined. Color: Ext. 2.5YR 4/4 reddish brown, Int. 2.5YR 3/4 dark reddish brown. Petrofabric: **p**EPN1.
Fig. 11: 10 Labwa III al-Yamīn 5	EPN 2 No known parallels. Ware parallels figure 7(A); ᶜAyn asch-Schmāl 24)	Bowl? Plain ware. Exterior and interior light slip? and low burnish. Striations. Clay moderately refined. Color: Ext. 2.5YR 3/2 dusky red, Int. 2.5YR 2/4 dark reddish brown. Petrofabric: **p**EPN3Aw1.
Fig. 11: 11 Nabᶜ al-Fāᶜūr 16	EPN 2 Nabᶜ al-Fāᶜūr (Marfoe 1995: 52 fig. 24.12	Ring Base. DFBW. Exterior and interior slip and burnish. Slip moderate thickness. Clay moderately refined. Color: Ext. 10YR 3/2 very dark grayish brown and Int. 10YR 4/4 dark yellowish brown. Petrofabric: **p**EPN2.
Fig. 11: 12 Nabᶜ al-Fāᶜūr 18	EPN 1 or 2 Nabᶜ al-Fāᶜūr (Marfoe 1995: 52 fig.24.13	Body Sherd. DFBW. Incised Decoration. Clay moderately refined. Color: Ext. and Int. 10YR 3/2 very dark grayish brown. Petrofabric: **p**EPN2.

Figure 10 EPN pottery sample list, date, parallels, and descriptions for drawings on figure 11.

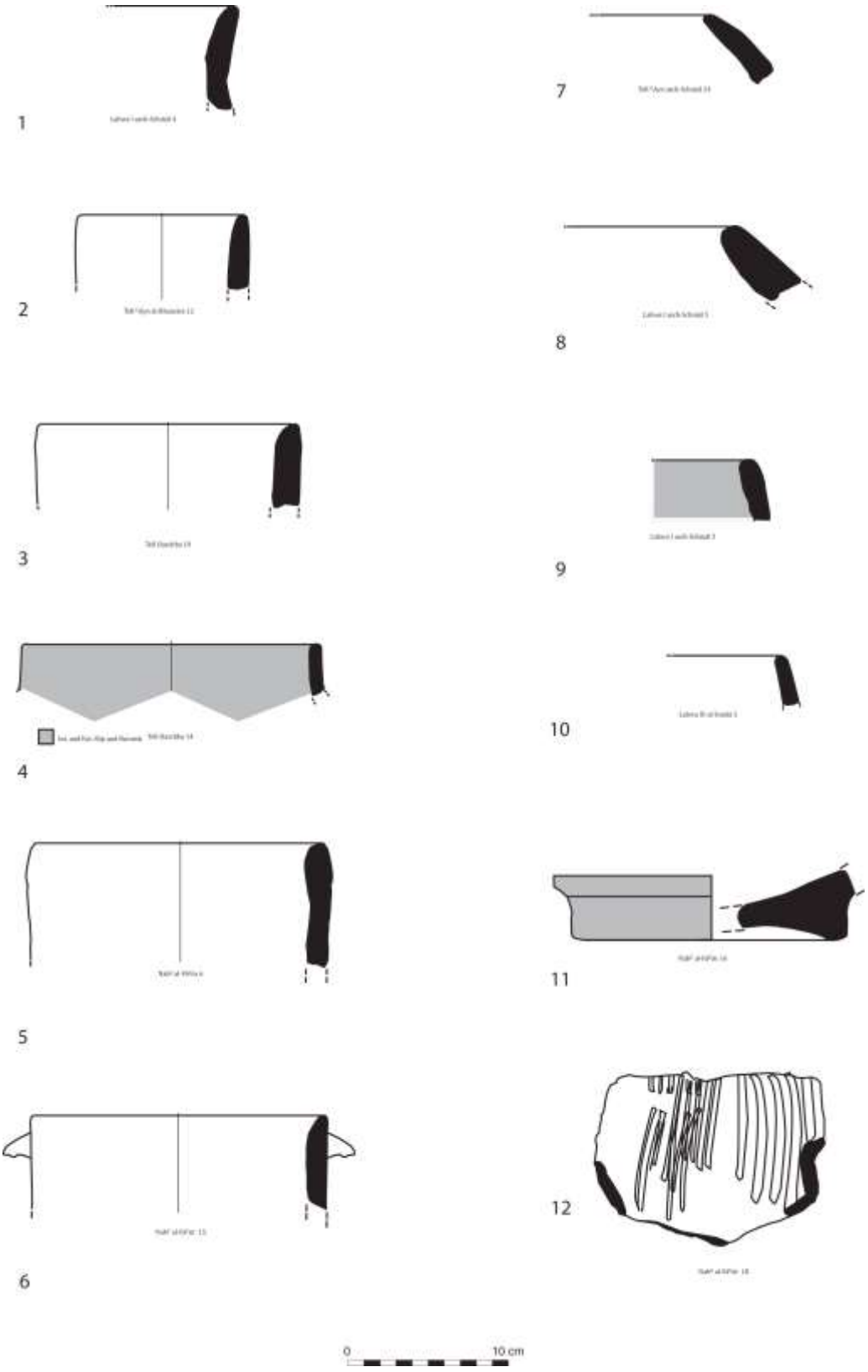

Figure 11 Jars and Bases from the EPN 1 and 2.

Figure and Sample Number	Date and Parallels	Description
Fig. 13: 1 Nab^{c} al-Fā^{c}ūr 19	EPN 2 Lod (Kaplan 1977: fig. 3.5) See Garfinkel 1999: 81 for other similar forms	Large Bowl. Plain Ware. Multiple loop handles. Coarse Clay. Color: Ext. and int. 2.5YR 5/4 reddish brown. Petrofabric: **p**EPN3Aw2.
Fig. 13: 2 Labwa I asch-Schmāl 2	EPN 1 or 2 K-L7 Shir (Nieuwenhuyse 2009: plate 2: 3) Dating based on Ware comparison (Labwa III al-Yamīn 6)	Body sherd with ledge handle. DFBW. Exterior slip and burnish, possible int silp. Clay moderately refined. Color: Ext. 2.5YR 4/4 reddish brown, Int. 2.5YR 3/4 dark reddish brown. Petrofabric: **p**EPN4.
Fig. 13: 3 Nab^{c} al-Fā^{c}ūr 1	EPN 2 'Ain Ghazal (Kafafi 1990: fig. 5.3)	Large Bowl. Plain Ware. Lug Handles. Surface bloom due to salinity. Sooting on surface. Coarse Clay. Color: Ext. 2.5Y 5/2 grayish brown and int. 2.5YR 6/4 light reddish brown. Petrofabric: **p**EPN5.
Fig. 13: 4 Nab^{c} al-Fā^{c}ūr 3	EPN 1 or 2 Nab^{c} al-Fā^{c}ūr (Marfoe 1995: 53 fig. 25.1)	Large Bowl. Proto-DFBW. Light slip, light burnish. Coarse Clay. Color: Ext. and int. 2.5YR 3/4 dark reddish brown. Petrofabric: **p**EPN2.
Fig. 13: 5 Nab^{c} al-Fā^{c}ūr 8	EPN 1? Amuq A (Braidwood and Braidwood 1960: 53 fig. 27.10) Nab^{c} al-Fā^{c}ūr (Marfoe 1995: 53 fig. 26.2)	Large Bowl. DFBW. Coarse Clay. Differential firing. Color: Ext. 2.5Y 5/4 light olive brown and int. 2.5Y 3/2 very dark grayish brown. Petrofabric: **p**EPN2.
Fig. 13: 6 Nab^{c} al-Fā^{c}ūr 5	EPN 1 or 2 L7 Shir (Nieuwenhuyse 2009 plate 4:5)	Holemouth jar. DFBW. Clay coarse. Color: Ext. and int. 2.5Y 4/4 olive brown. Petrofabric: **p**EPN4.

Figure 12 EPN pottery sample list, date, parallels, and descriptions for drawings on figure 13.

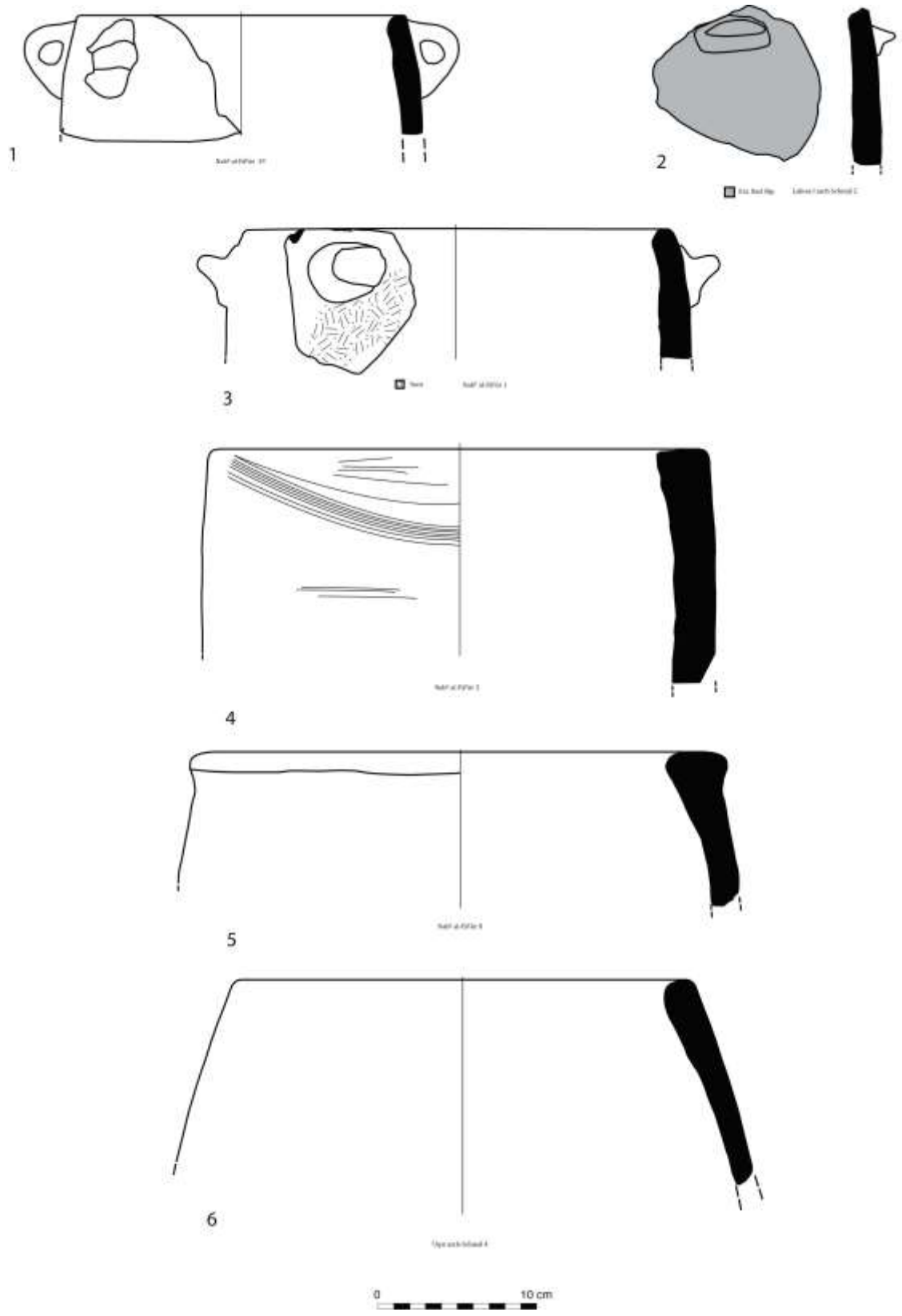

Figure 13 Large open forms from the EPN 1 and 2.

The Ceramics of the LPN

LPN ceramics are more varied and complex when compared to those of the EPN 1 and 2, evidencing a continued proliferation of ceramics and a continued diversification of ceramic technology – a process begun in the EPN 2. In the LPN, the associations of materials found in Lebanon with regional traditions changes significantly. The ceramics of this period are more comparable across different parts of Lebanon (Kirkbride 1969) and continue to be comparable with ceramics found to the north, especially at Arjoune (Parr 2003). What is new for beginning in the LPN is the presence of forms and decorative patterns in the Biqāᶜ and at Byblos, which are comparable with those commonly found to the south, like the Wadi Rabah complex. The LPN assemblage from Lebanon even contains some Halaf pottery, which was found in quantity at Tell Arḍ at-Tlaili (Kirkbride 1969). Marfoe has noted that Halaf pottery is only known from Arḍ at-Tlaili (1995: 55) in the Biqāᶜ and its absence from the survey materials used for this study otherwise seems to confirm his original assessment. Arjoune also produced a large variety of Halaf types (Parr 2003: Chapter VI), although it comprises only a very low proportion of the total assemblage. The Biqāᶜ, thus, appears to be the southernmost distribution of Halaf pottery in any quantity. Relative to the EPN, there are a greater number of sites in Syria and Palestine that provide highly comparable parallels for LPN ceramic types found in Lebanon. In addition to Arjoune, the LPN ceramics from the USJ collections are most closely comparable to those from the Middle and Late Neolithic at Byblos (Dunand 1973), Amuq C (and rarely B) (Braidwood and Braidwood 1960), Munḥata (Garfinkel 1992), Jericho (Kenyon and Holland TA 1982), and ‘Ein el-Jarba (Kaplan 1969). The presence of both Halaf pottery and other Northern and Southern Levantine types is unique in Levant during this period and indicates that the Biqāᶜ Valley is something of a crossroads during the LPN, at least with respect to ceramic traditions.

The prevalent ware types in this period are not significantly different from those of the previous period, except for the limited appearance of Halafian ware. Dark Faced Burnish Ware is still found very frequently, but the most common colors are dark brown, red, and black (figure 14 (A)). The plain wares increase in frequency, and are similar to those of the EPN, except that some appear in reddish colors. These plain wares are sometimes decorated with grooved or scratched incisions (figure 16: 14). A thin red slip is sometimes applied to the surface of vessels and there is some evidence of painting (figure 24: 2). According to Marfoe (1995: 61), Djisr stage pottery can be identified by the presence of glossy black or red burnish with a band inside the rim, regular incised or punctuated decoration (figure 14 (C)), and very simple coarse wares. Large quantities of Djisr stage pottery were not available for study and Marfoe's original assessments could not be confirmed. The Djisr stage is mentioned here in the event that future research in the Biqāᶜ might allow for a more confident distinction and better definition of this stage.

The major difference between the pottery of the EPN and LPN in the Biqāᶜ is a marked change in morphology and increased morphological complexity. The skill required to create vessels has increased, as vessels are becoming more regular, their walls are becoming thinner, and their shapes are more varied and complicated. Holemouth jars and simple open bowls remain, but are in many cases more regular. The major additions to the ceramic repertoire are high necks (figure 18: 1-10), flaring rims (figure 18: 1-6), and bow rims (figure 18: 9 and figure 20: 1). Bow rims are typical of this stage of the Neolithic in the southern Levant (Garfinkel 1999: 133, Kirkbride 1969: 55). On average there is an increase in the overall size of vessels. Types of handles include ledge handles, knob handles, and loop handles. Bases are usually flat.

DFBW is found commonly at Tell ᶜAyn asch-Schmāl, Tell Arḍ at-Tlaili, and Tell ᶜAyn as-Saᶜūda. A petrographic analysis of these vessels shows they are no longer produced using clays derived from Neogene Basalts (Badreshany 2013: 420), but rather using chalk and limestone derived clays; calcite temper is commonly used. The DFBW of the LPN are produced in a greater range of colors. Red is the most common color followed by a very dark brown/black color. In some cases there is no discernible slip, just a very high burnish (figure 14 (A)). Rarely the finish is found in light brown tending toward red. Incisions on DFBW (figure 14 (B)) and some plain wares are a common decorative motif.

Other differences in the DFBW of the LPN compared to those of the previous period are in firing and morphology. The firing process has become longer and temperatures are higher, according to evidence from the petrographic analysis of these vessels (Badreshany 2013: 382) The morphology has changed with thin walls and flaring rims becoming common (see especially figure 16: 8 and figure 18: 1, 3, 6, and 10). The vessels are more regular and symmetrical with smoother curves and sculpted contours. There appears to be a shared aesthetic that combines thinner walls that taper toward the rim and the use of relatively sharp angles where the rim of the vessel meets the body or where the walls of bowls meet the base. The remaining DFBW in other parts of the Levant share similar traits. Some plain ware bowls also have taken on this aesthetic although they do not have the characteristic slip and burnish (figure 18: 7).

Plain ware vessels are more common in LPN and are made of clay of varying coarseness and treatment. The vessels are generally more regular than those of the previous period. Many of the traces of manufacture noted in the EPN, like finger impressions and marks left from coiling are no longer found, making it more difficult to identify stages along the *chaîne opératoire* of LPN ceramics.

Organic temper is used in some cases. One type of light clay is found on a number of vessels (figure 14 (E)). The clay could be slightly saline, causing the surface to appear a very light brownish-white and might represent the selection of certain types of clays by the potter. The spalling of lime on the surface of vessels is fairly common, indicating a higher firing temperature.

Plain ware can be decorated with incisions, (figure 18: 4 and figure 20: 1), punctation (figure 14 (C)), red slip or wash, cord impressions (16: 12), and rarely paint. Red and Black painting were found on some vessels, but it remains rare. Kirkbride (1969) published a large amount of painted Halaf wares from Tell Arḍ at-Tlaili, but no further examples were found in the survey materials.

The petrography indicates that most of the ceramic vessels found in Lebanon during the LPN are made using locally available resources. The preferred clays are similar to those that were first used in the EPN 2, such as clays derived Upper Cretaceous-Paleogene Chalks and Alluvial-Colluvial Sediments derived from Lower and Middle Cretaceous Limestones. Likewise, tempering practices do not change from the EPN 2. Preferred tempers include calcite, organic material, chalk, and limestone.

Much like the EPN, the pottery of the LPN in the Biqāᶜ is linked by common morpho-stylistic traits, which in turn can be linked to regional assemblages. Many important attributes are added to the repertoire, such as high flaring necks, that will continue to be used throughout the Bronze Age. The refinement and morphology of the DFBW shows that the potters of this period are highly skilled. More complicated and varied color patterns, for example, show a thorough understanding of the effect of firing and materials selection on the final product.

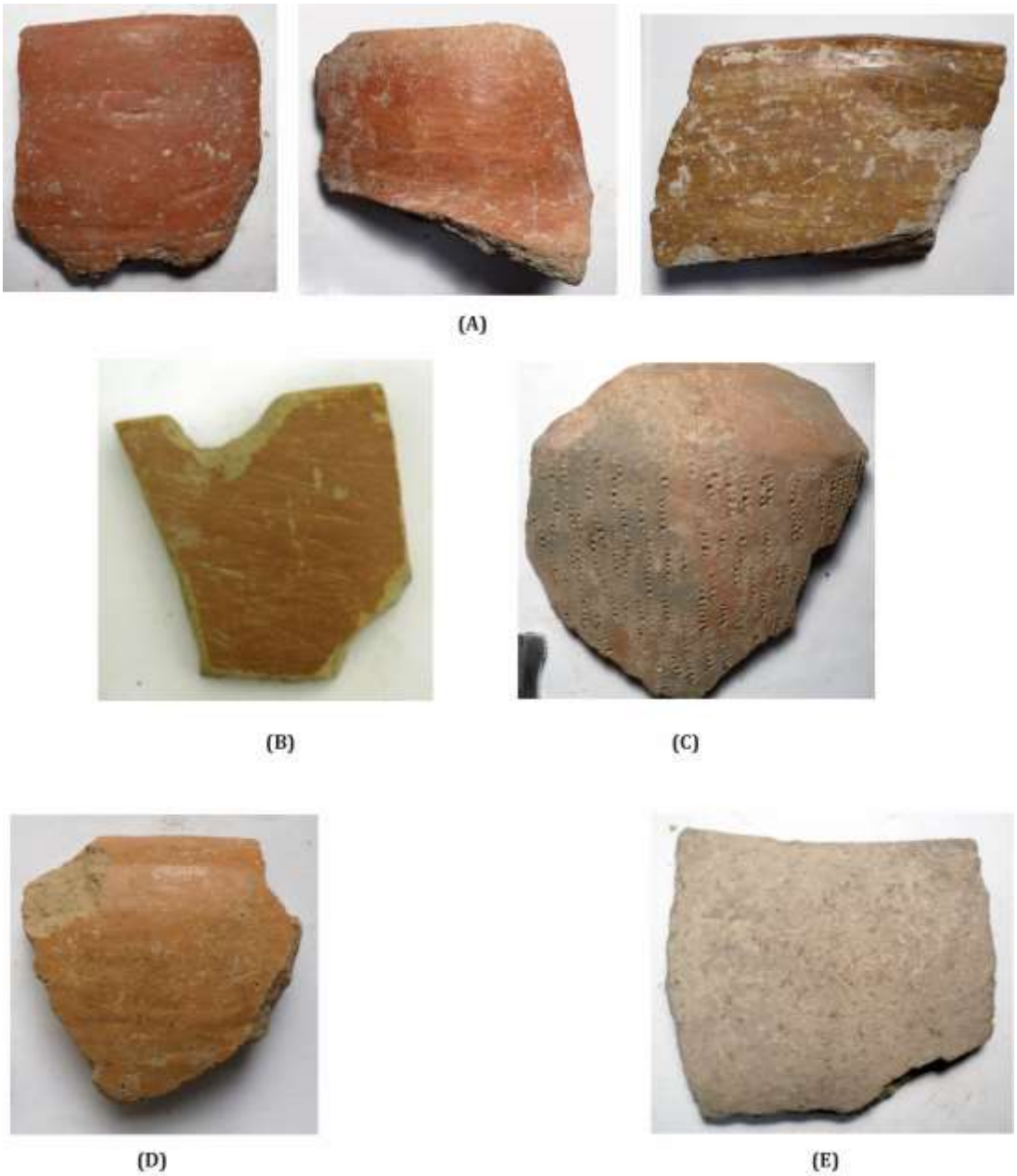

Figure 14 (A) DFBW in red and brown shades typical of the LPN from Tell Arḍ at-Tlaili. (B) DFBW with incised decoration ᶜAyn asch-Schmāl. (C) Sherd with punctuated decoration from ed-Djisr. (D) Sherd Burnished with no slip ᶜAyn asch-Schmāl. (E) Light plain ware sherd Arḍ at-Tlaili.

Figure and Sample Number	Date and Parallels	Description
Fig. 16: 1 ᶜAyn asch-Schmāl 7	LPN Amuq C (Braidwood and Braidwood 1960: 140 fig. 106.11 and 12) Munḥata 2a (Garfinkel 1992: fig. 95.10 and 95.12)	Incurve Bowl. DFBW. Exterior thick slip and high burnish. Slip moderate thickness. Clay well refined. Color: Ext. and Int. 10YR 5/6 yellowish brown. Petrofabric: **p**LPN1A.
Fig. 16: 2 ᶜAyn asch-Schmāl 17	LPN Amuq D (Braidwood and Braidwood 1960: 159 fig. 123.2)	Bowl. DFBW. Exterior and Interior slip and burnish. Clay moderately refined. Color: Ext. 2.5YR 4/6 red and int. 2.5YR 6/4 light reddish brown. Petrofabric: **p**LPN1Aw1.
Fig. 16: 3 ᶜAyn as-Saᶜūda 17	LPN Arḍ at-Tlaili (Marfoe 1995 p.58 fig. 28.6)	Bowl. DFBW. Exterior and Interior slip and burnish. Clay moderately refined. Color: Ext. and int. 2.5YR 6/8 light red. Petrofabric: **p**LPN1B.
Fig. 16: 4 Arḍ at-Tlaili 2	LPN Amuq D (Braidwood and Braidwood 1960: 159 fig. 123.4) Tel ‘Ali Ib (Garfinkel 1992: fig. 192.4	Bowl. DFBW. Exterior and Interior slip and burnish. Clay moderately refined. Color: Ext. and int. 2.5YR 4/6 red. Petrofabric: **p**LPN1B.
Fig. 16: 5 ᶜAyn asch-Schmāl 8	LPN Arḍ at-Tlaili (Marfoe 1995: 58 fig.28.6)	Bowl. Plain ware. Reduced firing. Incision under rim. Clay moderately refined. Color: Ext. and int. 2.5Y 4/2 dark grayish brown. Petrofabric: **p**LPN1A.

Figure and Sample Number	Date and Parallels	Description
Fig. 16: 6 ᶜAyn asch-Schmāl 13	LPN Byblos Middle Neolithic (Dunand 1973: 108 fig. 618161) Hazorea (Anati et al.1973: fig. 54.8)	Bowl of possibly jar. DFBW. Thick slip high burnish. Incisions on surface. Clay moderately refined. Color: Slip: 2.5YR 3/6 dark red and int. 2.5Y 6/4 light yellowish brown. Petrofabric: **p**LPN1A.
Fig. 16: 7 ᶜAyn asch-Schmāl 14	LPN Amuq B (Braidwood and Braidwood 1960: 105 fig. 73.4)	Bowl. Plain ware. Clay moderately refined. Color: Ext. and int. 2.5Y 4/4 olive brown. Petrofabric: **p**LPN1Aw1.
Fig. 16: 8 Arḍ at-Tlaili 8	LPN Jericho (Kenyon and Holland 1983: fig. 120.12)	Bowl. DFBW. Exterior and interior slip and burnish. Striations. Clay well refined. Color: Ext. 2.5Y 1/2 black and int. 2.5Y 4/2 dark olive brown. Petrofabric: **p**LPN1A.
Fig. 16: 9 Aswad 10	LPN Dating based on Ware comparison (ᶜAyn asch-Schmāl 8)	Bowl. Plain ware. Lug handles. Clay moderately refined. Color: Ext. and int. 10R 4/6 red. Petrofabric: **p**LPN4A.
Fig. 16: 10 ᶜAyn asch-Schmāl 19	LPN Dating based on Ware comparison (ᶜAyn asch-Schmāl 13)	Flat base. DFBW. Exterior and interior slip and burnish. Clay moderately refined. Color: Ext and int. 2.5YR 3/6 dark red. Petrofabric: **p**LPN1B.
Fig. 16: 11 ᶜAyn asch-Schmāl 18	LPN Dating based on Ware comparison (ᶜArḍ at-Tlaili 3)	Flat base. Plain ware. Clay coarse. Color: Ext and int. 5Y 6/4 pale olive. Petrofabric: **p**LPN2A.
Fig. 16: 12 ᶜAyn asch-Schmāl 36	LPN Dating based on Ware comparison (ᶜAyn asch-Schmāl 20)	Body sherd. Plain ware. Rope decoration. Clay moderately refined. Color: Ext and int. 5Y 6/4 pale olive. Petrofabric: **p**LPN4A.

Figure and Sample Number	Date and Parallels	Description
Fig. 16: 13 ᶜAyn as-Saᶜūda 4	LPN 'Ein Jarba (Wadi Rabah ware) see Garfinkel 1999: 142 for photo	Body sherd. Plain ware. Painted. Clay moderately refined. Color: Ext and int. 5Y 6/2 olive gray. paint: 5Y 1/2 black. Petrofabric: **p**LPN5.
Fig. 16: 14 Ḥaschba 13	LPN 'Ein Jarba (Wadi Rabah ware) see Garfinkel 1999: 144 for photo	Body sherd. Plain ware. Incised decoration. Clay moderately refined. Color: Ext and int. 5Y 5/2 olive gray. Petrofabric: **p**LPN3.

Figure 15 LPN pottery sample list, date, parallels, and descriptions for drawings on figure 16

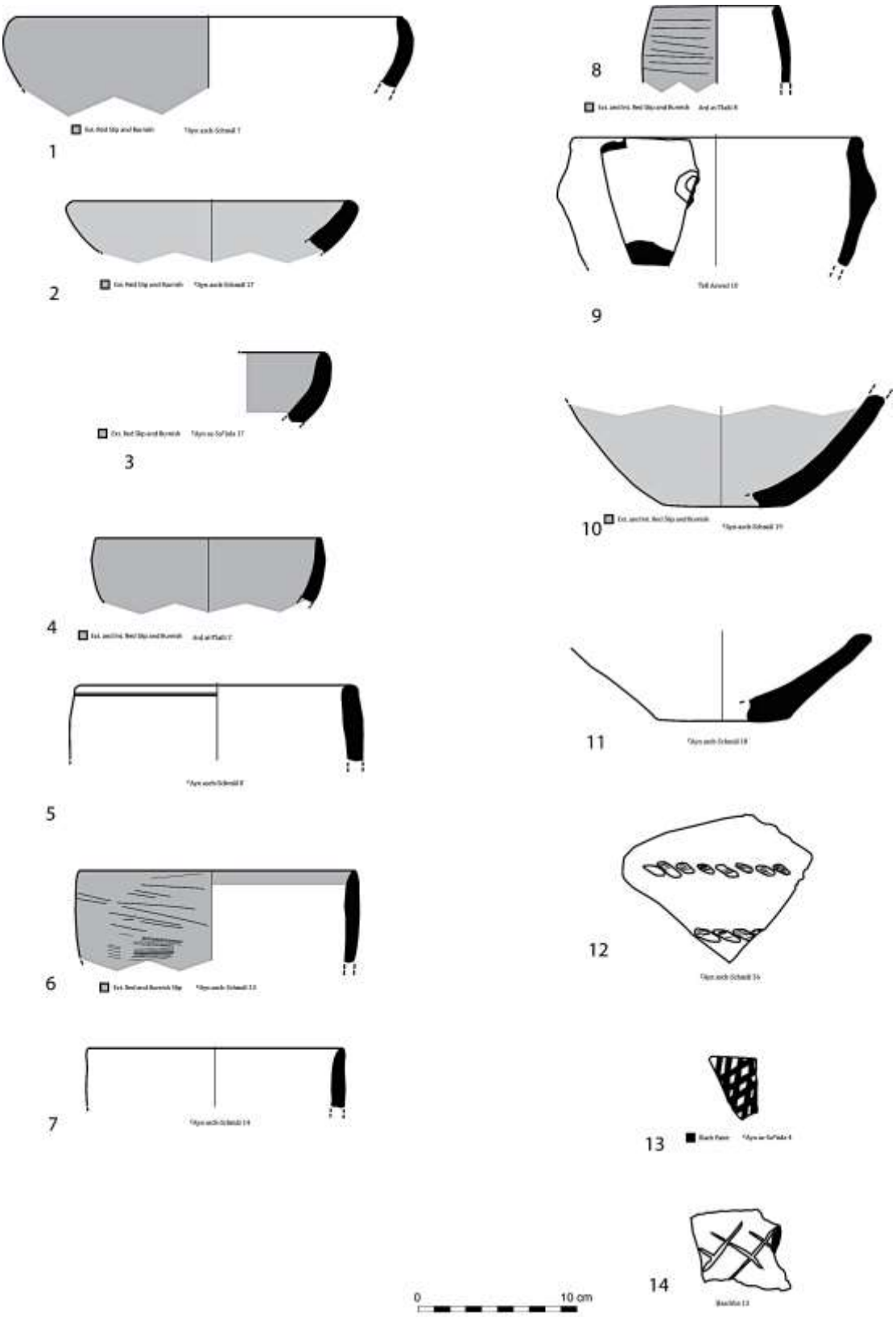

Figure 16 Bowls, bases, and decoration of the LPN.

Figure and Sample Number	Date and Parallels	Description
Fig. 18: 1 ᶜAyn asch-Schmāl 1	LPN Jericho (Kenyon and Holland 1983: fig. 28:3) Arḍ at-Tlaili (Marfoe 1995 p.58 fig. 28.7)	Jar. DFBW. Flaring rim. Exterior slip and burnish. Rim burnished. Clay well refined. Color: Ext. 2.5YR 4/8 red and int. 5Y 6/6 olive yellow. Petrofabric: **p**LPN1B.
Fig. 18: 2 ᶜAyn asch-Schmāl 2	LPN Jericho (Kenyon and Holland 1983: fig. 76:27) Arḍ at-Tlaili (Marfoe 1995 p.58 fig. 28.9)	Jar. DFBW. Flaring rim. Exterior slip and burnish. Rim burnished. Clay well refined. Color: Ext. 2.5YR 1/2 very dusky red and int. 2.5YR 4/2 weak red. Petrofabric: **p**LPN1A.
Fig. 18: 3 ᶜAyn asch-Schmāl 15	LPN Byblos Middle Neolithic (Dunand 1973: 108 fig. 62:21694)	Jar. DFBW. Exterior slip and burnish. Rim burnished. Clay well refined. Color: Ext. and int. 10YR 4/6 dark yellowish brown. Petrofabric: **p**LPN2A.
Fig. 18: 4 ᶜAyn al-Khanzīra 1	LPN Byblos Middle Neolithic (Dunand 1973: 113 fig. 66:32109)	Jar. Plain ware. Flaring rim. Incised decoration. Clay moderately refined. Color: Ext. and int. 7.5YR 5/4 brown. Petrofabric: **p**LPN4Aw1.

Figure and Sample Number	Date and Parallels	Description
Fig. 18: 5 Arḍ at-Tlaili 10	LPN (or Late EPN 2) EPN shape, but LPN ware could be Transitional. Byblos Early Neolithic (Dunand 1973: 56 fig. 25:28616)	Jar. DFBW. Exterior slip and burnish. Rim burnished. Clay moderately refined. Color: Ext. 10YR 4/8 red and int. 10R 4/6 red. Petrofabric: **p**LPN1B.
Fig. 18: 6 Saqiet al-Khalli 7	LPN See Garfinkel 1999: 138 for similar jars.	Jar. Plain ware. Flaring rim. Clay moderately refined. Color: Ext. and int 10YR 5/6 yellowish brown. Petrofabric: **p**LPN3.
Fig. 18: 7 ᶜAyn asch-Schmāl 6	LPN Arḍ at-Tlaili (Marfoe 1995: 58 fig. 28.5)	Jar or bowl. Plain ware. Flaring rim. Clay moderately refined. Color: Ext. and int. 5Y 4/4 olive yellow. Petrofabric: **p**LPN1A.
Fig. 18: 8 ᶜAyn as-Saᶜūda 5	LPN Trench V Arjoune (Parr 2003:49: 32) Arḍ at-Tlaili (Marfoe 1995: 58 fig. 28.1	Jar. Plain ware. Differential firing. Clay moderately refined. Color: Ext. 2.5YR 5/5 red and int. 2.5YR 4/2 red. Petrofabric: **p**LPN2A.
Fig. 18: 9 ᶜAyn as-Saᶜūda 6	LPN Tell Batash III (Kaplan 1958: fig 10:13)	Jar. Bow rim. Plain ware. Differential firing. Clay coarse. Color: Ext. and int. 2.5YR 5/4 reddish brown. Petrofabric: **p**LPN3.
Fig. 18: 10 ᶜAyn as-Saᶜūda 11	LPN Tell Halaf (Von Oppenheim 1943: fig XVIII:2) Jericho (Kenyon and Holland 1983: Fig 33:9)	Jar. DFBW. Exterior slip and burnish. Rim burnished. Clay moderately refined. Color: Ext. 2.5YR 4/8 red and int. 2.5Y 7/2 pale red. Petrofabric: **p**LPN1B.

Figure and Sample Number	Date and Parallels	Description
Fig. 18: 11 Saqiet al-Khalli 8	LPN/CH 1 or 2 See Garfinkel: 1999: 138 for similar jars.	Jar. Plain ware. Clay coarse. Color: Ext. and int. 2.5YR 5/4 reddish brown. Petrofabric: **p**LPN3.

Figure 17 LPN pottery sample list, date, parallels, and descriptions for drawings on figure 18

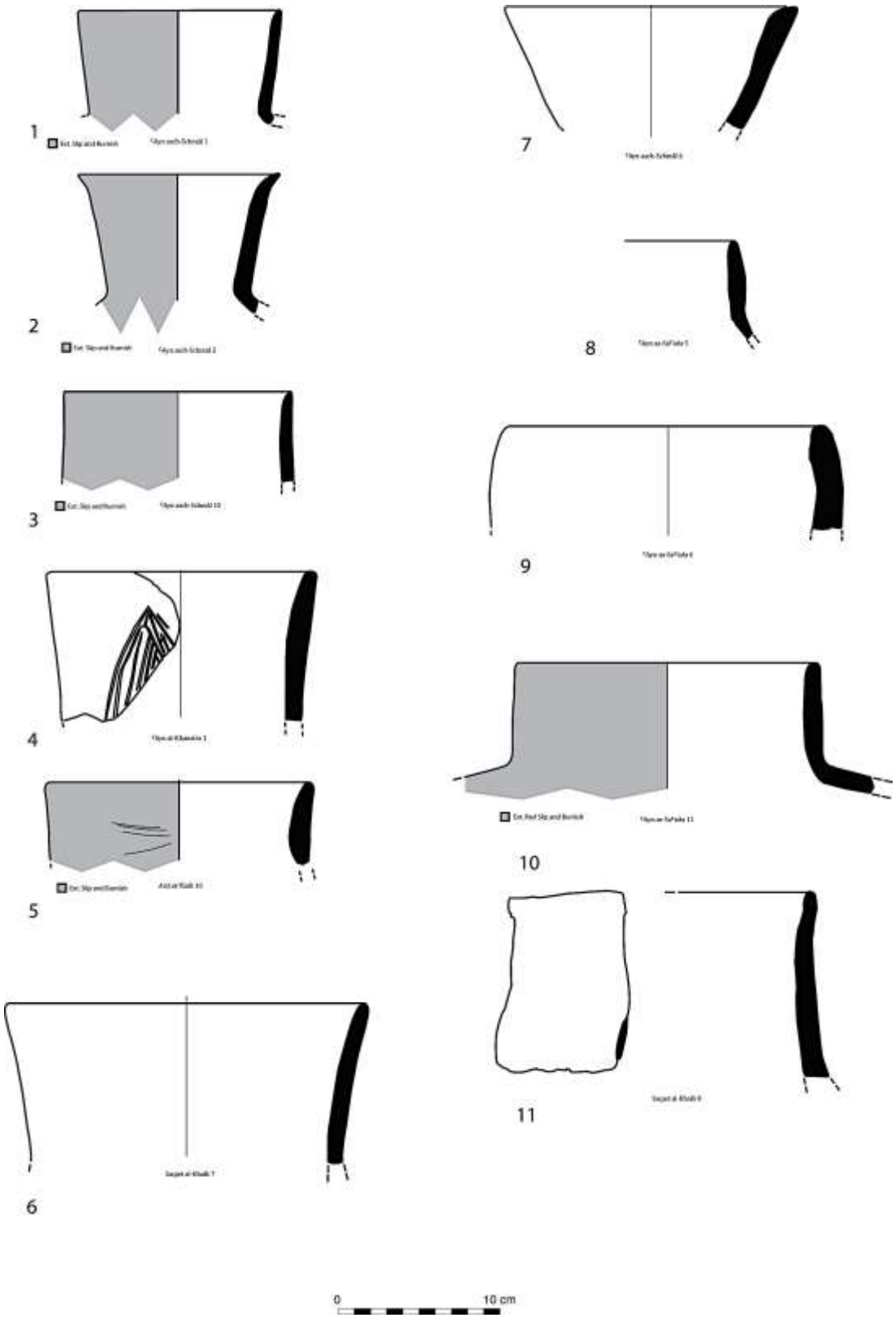

Figure 18 Jars of the LPN/CH 1 and 2.

Figure and Sample Number	Date and Parallels	Description
Fig. 20: 1 Nabᶜ al-Fāᶜūr 14	LPN See Garfinkel 1999: 134 for similar jars.	Jar. Bow rim. Plain ware. Incisions on rim. Differential firing. Clay moderately coarse. Color: Ext. and int. 10YR 4/4 dark yellowish brown. Petrofabric: **p**LPN1Aw1.
Fig. 20: 2 Nabᶜ al-Fāᶜūr 17	LPN Arḍ at-Tlaili (Marfoe 1995: 58 fig. 28.10)	Jar. Plain ware. Differential firing. Clay coarse. Color: Ext. and int. 5Y 6/4 pale olive. Petrofabric: **p**LPN2A.
Fig. 20: 3 Arḍ at-Tlaili 3	LPN Amuq D (Braidwood and Braidwood 1960: 162 fig. 126.14 Tabaqat al-Bûma Late Neolithic 5 (Banning *et al.* 2011: 41 fig 4.11-8)	Jar. Plain ware. light burnish Clay coarse. Color: Ext. and int. 2.5YR 4/4 reddish brown. Petrofabric: **p**LPN1A.
Fig. 20: 4 ᶜAyn as-Saᶜūda 9	LPN Amuq D (Braidwood and Braidwood 1960 p. 162 fig. 126.14 Tabaqat al-Bûma Late Neolithic 5 (Banning *et al.* 2011: 41 fig 4.11-8)	Jar. Plain ware. Striations. Clay coarse. Color: Ext. and int. 2.5Y 6/4 light yellowish brown. Petrofabric: **p**LPN3.
Fig. 20: 5 ᶜAyn as-Saᶜūda 2	LPN Byblos Late Neolithic (Dunand 1973 p.147 fig. 89.27076)	Jar or Bowl. DFBW. Exterior slip and burnish. Rim burnished. Clay moderately refined. Color: Ext. 10YR 4/6 dark yellowish brown and int. 10YR 6/4 light yellowish brown. Petrofabric: **p**LPN1B.
Fig. 20: 6 ᶜAyn asch-Schmāl 16	LPN Byblos Late Neolithic (Dunand 1973: 147 fig. 89.27076)	Jar. DFBW. Exterior slip and burnish. Rim burnished. Clay moderately refined. Color: Ext. 2.5Y 5/4 light olive brown and int. 5Y 6/4 pale olive. Petrofabric: **p**LPN2Aw1.

Figure 19 LPN pottery sample list, date, parallels, and descriptions for drawings on figure 20

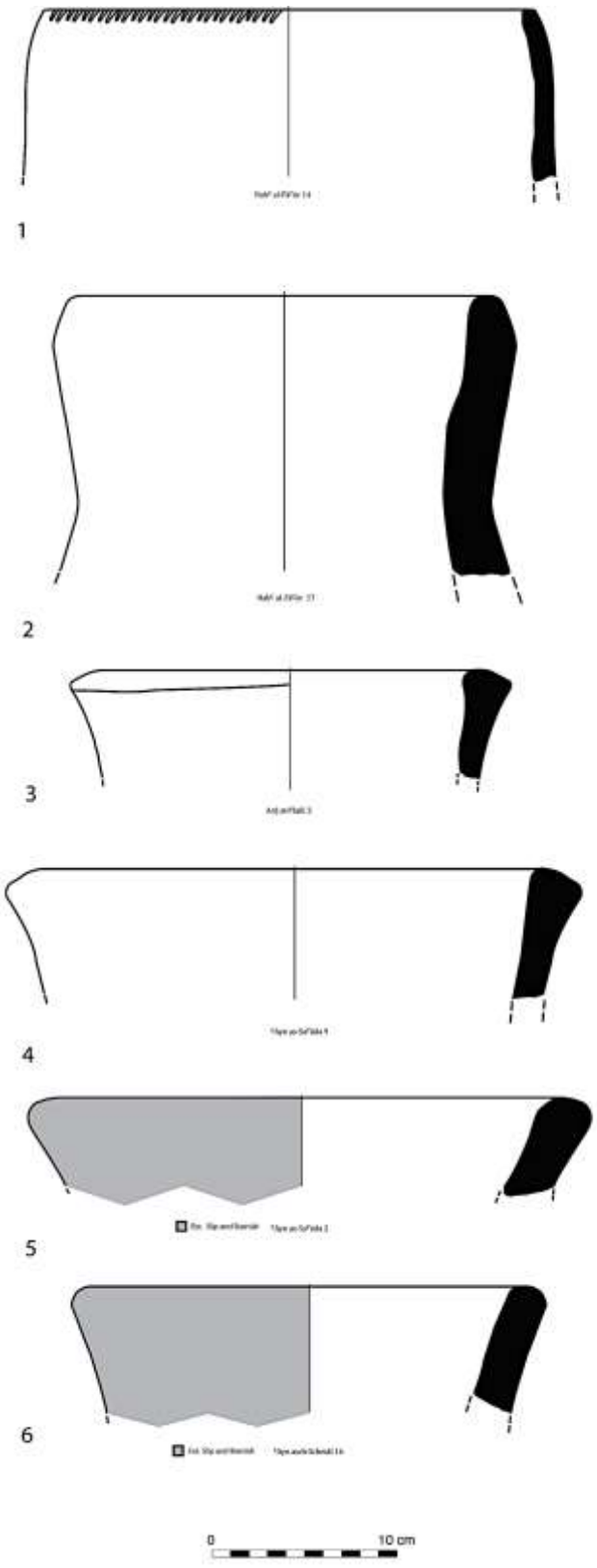

Figure 20 Large Jars of the LPN

Figure and Sample Number	Date and Parallels	Description
Fig. 22: 1 Ḥaschba 9	LPN Jericho (Kenyon and Holland 1983: fig 42:2)	Holemouth. Plain ware. Differential firing. Clay Coarse. Color: Ext. 2.5Y 7/4 pale yellow and int. 2.5YR 6/4 light reddish brown. Petrofabric: **p**LPN2A.
Fig. 22: 2 Arḍ at-Tlaili 9	LPN Byblos Early *Énéolithique* (Dunand 1973: 196 fig 124:21528)	Holemouth. Plain ware. Clay Coarse. Color: Ext. and int. 2.5Y 7/2 light gray. Petrofabric: **p**LPN1A.
Fig. 22: 3 Arḍ at-Tlaili 7	LPN Trench V Arjoune (Parr 2003: 51: 45) Amuq C (Braidwood and Braidwood: 141 fig. 107.2)	Holemouth jar? Plain ware. Slipped. Clay Coarse. Color: Ext. and int. 2.5YR 3/2 dusky red. Petrofabric: **p**LPN1B.
Fig. 22: 4 ᶜAyn as-Saᶜūda 15	LPN See Garfinkel 1999: 130 for similar jars.	Holemouth jar. DFBW. Exterior slip and burnish. Rim burnished. Clay moderately refined. Color: Ext. 10R 3/6 dark red and int. 2.5 YR 6/6 light red. Petrofabric: **p**LPN2A.
Fig. 22: 5 Nabᶜ Līṭānī 3	LPN See Garfinkel 1999: 130 for similar jars.	Holemouth jar. DFBW. Exterior slip and burnish. Clay moderately refined. Color: Ext. 10R 3/6 dark red and int. 2.5 YR 6/6 light red. Petrofabric: **p**LPN1B.
Fig. 22: 6 Nabᶜ Līṭānī 4	LPN Trench VII Arjoune (Parr 2003: 59: 15 Byblos Middle Neolithic (Dunand 1973: 110 fig. 64:31470)	holemouth jar. DFBW. Exterior slip and burnish. Clay moderately refined. Color: Ext. 10R 3/6 dark red and int. 2.5 Y 6/4 light yellowish brown. Petrofabric: **p**LPN2Aw1.

Figure 21 LPN pottery sample list, date, parallels, and descriptions for drawings on figure 22

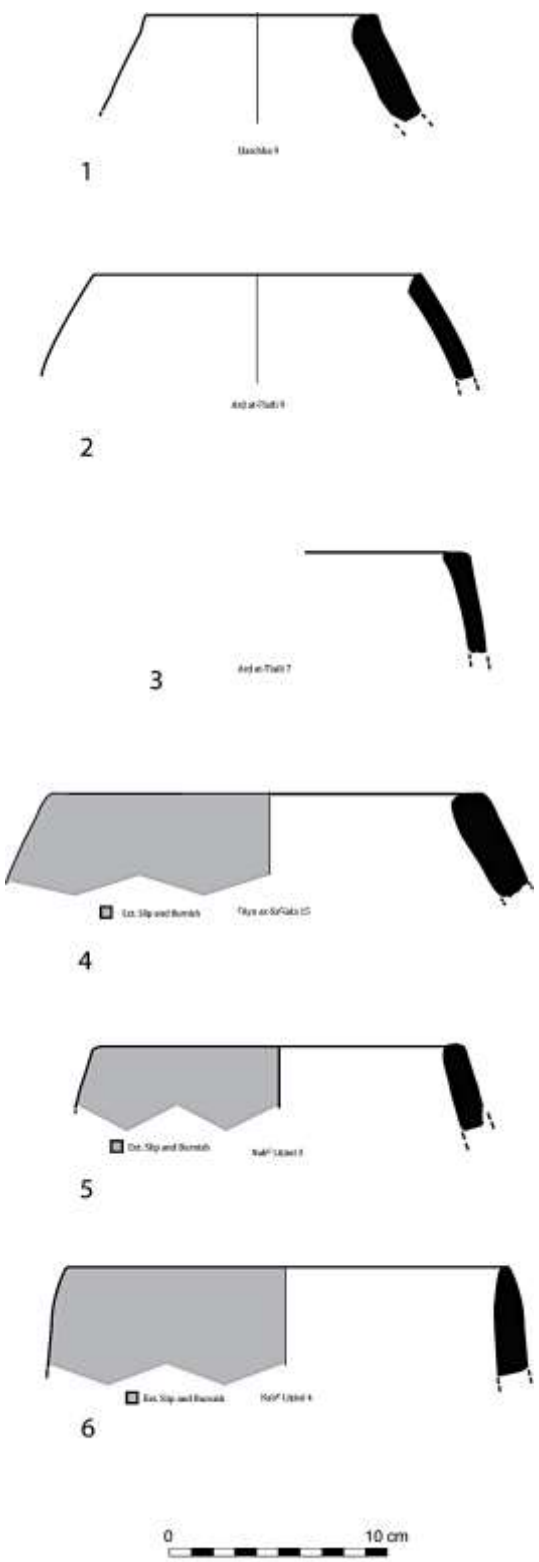

Figure 22 Holemouth jars of the LPN.

Figure and Sample Number	Date and Parallels	Description
Fig. 24: 1 [c]Ayn asch-Schmāl 25	LPN Jericho (Kenyon and Holland 1983: fig 33:2)	Holemouth jar. Plain ware. Clay coarse. Color: Ext. and int. 2.5 Y 6/4 10YR 5/4 yellowish brown. Petrofabric: **p**LPN2Aw1.
Fig. 24: 2 [c]Ayn asch-Schmāl 31	LPN Painting on rim and fabric similar to other examples of this period.	Holemouth jar. Plain ware. Clay moderately refined. Light burnish. Painted outside and on rim. Color: Ext. and int.10YR 6/4 light yellowish brown. Paint: 2.5YR 4/8 red. Petrofabric: **p**LPN2Aw1.
Fig. 24: 3 [c]Ayn asch-Schmāl 27	LPN Munḥata 2a (Garfinkel 1992: fig. 115.1)	Holemouth jar. Plain ware. Clay coarse. Color: Ext. and int.10YR 5/4 yellowish brown. Petrofabric: **p**LPN1B.
Fig. 24: 4 [c]Ayn asch-Schmāl 20	LPN Naḥal Beẓet I (Gopher *et al.* 1992: Fig 3.8	Holemouth jar. DFBW. Exterior slip or wash barley visible. Clay moderately refined. Color: Ext. 2.5YR 6/4 light yellowish brown and int. 10YR 5/2 grayish brown. Petrofabric: **p**LPN2Aw1.
Fig. 24: 5 [c]Ayn asch-Schmāl 22	LPN Amuq C (Braidwood and Braidwood 1960: 141 fig. 107.2	Holemouth jar. Plain ware. Clay coarse. Color: Ext. and int.10YR 6/4 light yellowish brown. Petrofabric: **p**LPN2Aw1.

Figure 23 LPN/CH pottery sample list, date, parallels, and descriptions for drawings on figure 24.

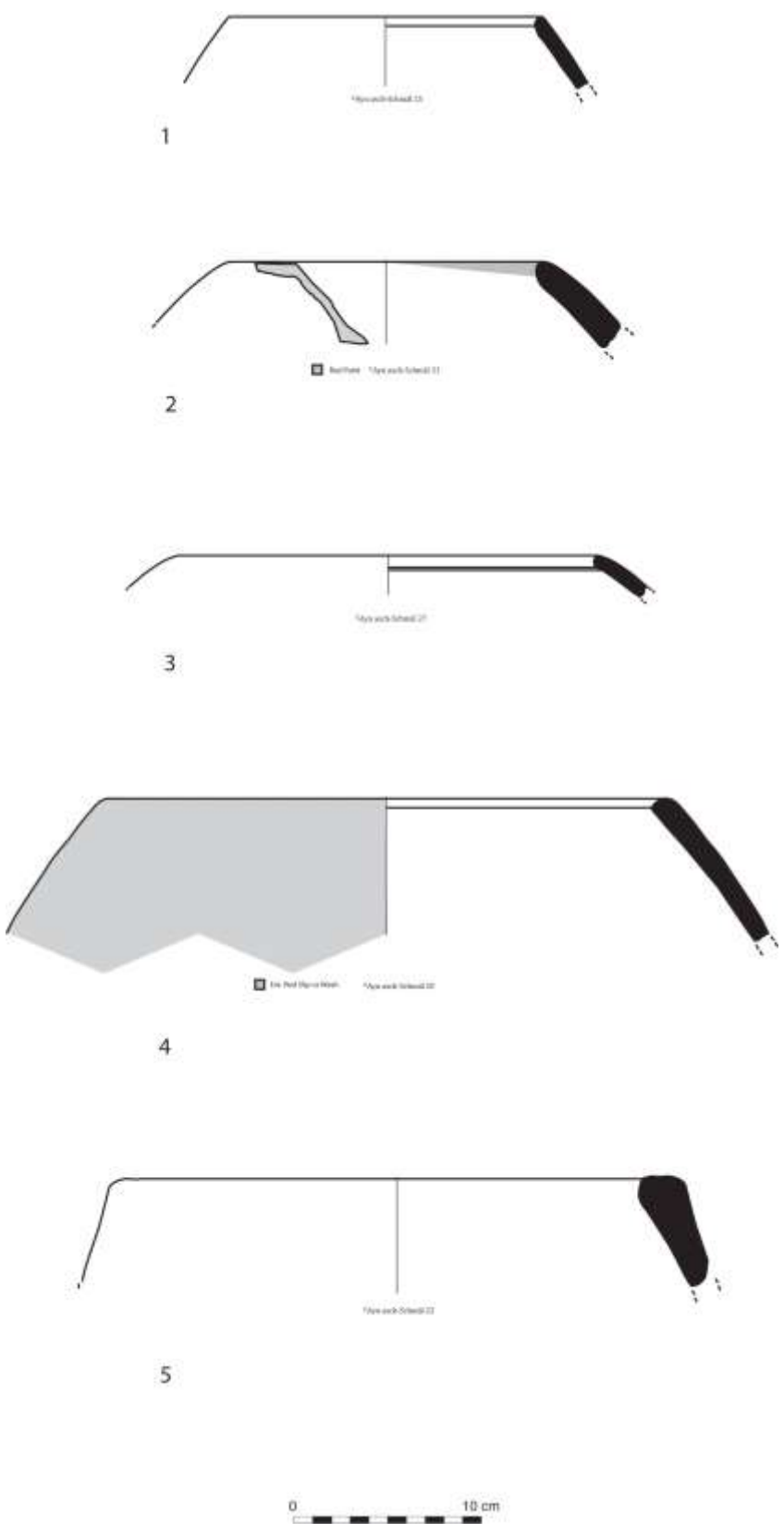

Figure 24 Holemouth jars of the LPN.

Summary and Conclusions

The evidence presented above shows that the earliest ceramics in Lebanon arrive in the Biqāᶜ Valley and ᶜAkkar sometime around 7000-6800 BC. Currently, the evidence indicates that ceramics aren't commonly found on the Lebanese Coast until sometime after 6500 BC. The earliest ceramics are part of the DFBW tradition found in the Northern Levant during this time. The dissemination and adoption of ceramic technology into Lebanon takes place in a counter intuitive manner. The current typological and petrographic evidence shows that the earliest ceramics in Lebanon do not represent a craft in its incipiency, but, rather, are products of a well-established tradition. Further, the earliest DFBWs are not produced locally in the Biqāᶜ or on the Lebanese coast, but more likely imported from farther north in Syria. Thus, the demand for this highly adaptable technology was not born out of a particular functional need. Rather, the earliest ceramic traditions in Lebanon are more to likely indicate the exchange of symbolically significant items for the purpose of reinforcing social relationships through reciprocity and gift exchange. Ceramics play a role similar to other exotic item commonly traded in the Neolithic, such as stone bowls, obsidian, and greenstone axes.

Period	Prevalent Wares	Prevalent Forms	Decoration	Technology
EPN 1	White Wares, DFBW (deep brown to brownish grey), some Coarse Wares	Simple globular vessels (bowls and Jars), ledge handles	Burnishing, light slipping, and cord impressions	Handmade vessels, simple forms, low firing temperatures

Period	Prevalent Wares	Prevalent Forms	Decoration	Technology
EPN 2	DFBW (chocolate to Black), plain ware, coarser wares	Simple globular vessels (bowls and jars), addition of holemouth jars ledge handles, loop handles, ring bases	Thicker slips, high burnishing, painting	Handmade vessels, increasing complexity of forms, higher firing temperature
LPN	DFBW (chocolate, Red, and Black), Halafian ware (rare), plain ware, coarser wares.	Simple globular vessels (bowls and Jars), holemouth jars, high necks, flaring rims, bow rims, ledge handles, loop handles, flat bases	Thick Slips, thin slips or washes, burnishing, Painting, grooved and scratched incisions, rope decoration	Handmade vessels, more complex forms, thinner vessel walls, better clay refinement complex firing procedures

Figure 25. Table Summarizing the typical wares, forms, decoration, and technology commonly found in each period

In the EPN 2, beginning roughly 6500 BC, pottery becomes widespread in the Biqāᶜ and on the Lebanese coast. The earliest locally made coarse and plain ware ceramics begin to appear, signaling the adaptation of ceramic technology for multiple roles related to food storage and preparation. Ceramics are now a fixture of daily life in the area. DFBW still makes up the majority of the pottery in the Biqāᶜ and on the Lebanese coast, unlike in other parts of the Levant where coarse and plain wares become the most dominant pottery types, indicating ceramics still retain a high-status role, in addition to the newly acquired functional ones.

In the LPN, beginning roughly 5800 BC ceramics become widespread for the first time throughout much of the Levant. In Lebanon, for the first time, most ceramics are locally made. Strong stylistic influences, however, from both the Northern and Southern Levant can be seen

in the ceramic materials, indicating a connectedness between Lebanon and other parts of the Levant. The ceramic evidence indicates that Lebanon acts as a kind of cross-roads connecting the two parts of the Levant during this period. The DFBW tradition continues exclusively in Lebanon and the immediately surrounding areas, giving way to painted traditions in the northern Levant.

Importantly, beginning in the LPN there is evidence for a greater degree of integration between the various regions of Lebanon, particularly among the different parts of the Biqāᶜ and the Lebanese coast. A cohesion develops as potters on either side of the Lebanese Mountains begin to draw on the same resources for potting, forming the basis for traditions that will continue for millennia.

Acknowledgements

This project was undertaken as part of postdoctoral research fellowship at Durham University for the project 'Computational Research on the Ancient Near East (CRANE)', funded by Social Sciences and Humanities Research Council of Canada. We would like to thank the team from the Musée de Préhistoire Libanaise at the Université Saint-Joseph de Beyrouth, Lévon Nordigiuan, Maya Haïdar Boustani, and Nelly Abboud for kindly providing permission and facilitating the study of the materials from the Biqāᶜ Valley. The ceramic assemblage from Tell Koubba was excavated by a joint project of the American University of Beirut and Durham University directed by Prof Hélène Sader, Prof. Graham Philip, and the author with support from the Council for British Research in the Levant, and the Society of Antiquaries of London. The pottery from the Homs region of Syria used for comparative analyses was collected by the project Settlement and Landscape Development in the Homs Region, Syria between 1999 and 2006 with support from the Council for British Research in the Levant. Sample collection in Syria in 2007 was funded by British Academy Grant SG-46112, while the authors gratefully acknowledge the support of the Directorate General of Antiquities of Lebanon and the

Directorate General of Antiquities and Museums of Syria who kindly gave permission to export samples for petrographic analysis. Thanks are also due to Ian Chaplin from the Department of Earth Sciences at Durham University for preparing the samples analyzed in this study and Chris Ottley from the Department of Earth Sciences at Durham University for undertaking the geochemical analyses by ICP –AES and –MS.

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